The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 101, NO. 16 CHICAGO, ILLINOIS OCTOBER 14, 1933

POSTMORTEM EXAMINATIONS

METHOD OF OBTAINING PERMISSION

WILLIAM J. HOFFMAN, M.D.
Clinical Fellow in Cancer Research, Memorial Hospital
NEW YORK

The importance of obtaining a high percentage of autopsies on the bodies of patients who die in hospitals needs no emphasis. Adequate instruction of students, development and evaluation of new methods of treatment, verification of diagnoses, accumulation of accurate records and statistics, and furtherance of research are best accomplished in institutions where a large percentage of deceased patients come to necropsy.

Hospitals which require a signed permission for autopsy as a prerequisite to admission have no difficulty in maintaining a high percentage. A different situation prevails in those hospitals which do not enforce such a requirement. These institutions (they constitute a majority of all hospitals) must depend on persuasion.

The request for permission to perform an autopsy must necessarily be made when the relatives are keyed to a high pitch of emotional excitement, when tender sentiments evoked by death offer strong opposition to any procedure which will entail indignity or mutilation to the body of the loved one. Against such a request are instantly marshaled powerful objections of a sentimental, personal or religious nature. To be successful the effort must be backed by appeals based on ethical and practical reasons known to the profession but inadequately realized by the public. These will be most effective if presented by a personality combining dignity, tactful sympathy and absolute sincerity.

The doctor making the request is in a favorable psychologic position. He is one of an honorable profession whose members for centuries have battled sickness and death. To him has fallen a heritage of prestige compounded of gratitude and respect—the intangible legacy from the medical giants of the past. Thorough awareness of this will confer on him a dignity out of all proportion to his age and lend to his arguments a convincing sincerity. The family already feel indebted to him and to the hospital staff for the care given to the patient, and despite the repugnance aroused by his request, realize that he is pleading a noble cause—the opportunity to carry on, with their permission and cooperation, the battle to save those similarly afflicted.

This grateful confidence exhibited by the patients and their relatives is the best asset and strongest argument possessed by the pleader. The degree to which it is developed during the patient's stay in the hospital will determine the likelihood of an autopsy should death intervene. Everything which fosters that sentiment will favorably influence the decision; anything which disturbs it will militate against such permission.

Analysis of the cases in which autopsy was refused revealed the following reasons for failure:

1. Divided responsibility. One or more members of the resident staff assumed that some one else was attending to the matter, with the result that no one made the request.

2. Delay. Relatives had left the hospital by the time the doctor arrived; relatives, anticipating such a request, left the hospital hurriedly. The interview was delayed until the following day. Meanwhile the family had discussed the subject at home and decided against it.

3. Poor technic. This consists of: a sudden brusque request; a high-pressure argument; an unsympathetic manner; loss of temper; threats; refusal to sign the death certificate; a request timidly and diffidently presented; unattractive personality of the doctor making the request; an interview in busy corridor and repeatedly interrupted so that the effectiveness of the argument was lost.

4. Indecision. Relatives, unwilling to assume responsibility of granting such permission (though not personally opposed to the autopsy), went home to consult others, but did not return.

5. Professional objections, made by doctors, dentists, nurses, undertakers or their families.

6. Personality conflicts. These comprised: dislike of the doctor making the request; dissatisfaction with the patient's treatment while in the hospital; antagonism because of real or fancied discourtesy by the doctor, nurse or a hospital employee; belief that the patient was neglected during his last hours (no doctor was present when the patient died and an intern did not arrive until fifteen minutes later); resentment because relatives were not called to the bedside until too late to see the patient alive; antagonism because the patient did not receive the last sacrament before death.

7. Religious objections. Jewish families frequently stated that their religion forbade postmortem examination, while others objected to any delay, saying that burial was required within twenty-four hours after death.

8. Miscellaneous. These were: a previous unhappy experience when a friend or relative had been submitted to autopsy and the body delivered in poor condition; the presence of too many relatives to afford their unanimous consent; a refusal based on one or more of the following objections:

"I know, but I'd rather not permit it. Let some one else do it."
"It will disfigure the body."
"But even such an incision is a mutilation."
"This is an ordinary case. You could never learn anything new from it."
"But cancer is hopeless. An autopsy would benefit no one."
"I do not think she would have wanted me to consent."
"He has suffered enough."

To avoid these causes of failure, I instituted the following procedure at the Memorial Hospital for Cancer and Allied Diseases:

Single Responsibility.—The obtaining of permission for autopsy was made the sole responsibility of the

Read before the Section on Pathology and Physiology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 16, 1933.

resident surgeon (myself) and carried to the point of recalling him to the hospital at any hour of the day or night whenever a patient died. No one else was permitted to broach the subject to the relatives except in certain circumstances where it seemed probable that the attending surgeon would be more likely to succeed.

Prompt Notification.—Patients were placed on the critical list somewhat earlier than had been customary, so that the family was notified in ample time to reach the bedside. Special visiting privileges were thus extended to the relatives often for several days before death occurred.

Courtesy.—Cultivation of a friendly spirit between the relatives and the hospital personnel was emphasized. Telephone inquiries concerning the patient were referred to the resident surgeon and, if thought advisable, a report was furnished. A courteous, frank statement as to the patient's condition prior to death often proved to be the approach to a friendly consideration of the request for an autopsy. An occasional special visiting privilege granted to a relative adds little to the work of the nurses and much to the gratitude of the recipient.

Accessibility.—Half an hour was set aside each afternoon and evening immediately after the visiting hours, at which time the relatives could meet the resident surgeon and receive a frank appraisal of the patient's condition, with a prognosis and a discussion of treatment or other aspects of the case. At these meetings the relatives could not fail to be impressed with the amount of effort expended in examining, diagnosing and treating each patient, and the industry, patience and kindness of the nursing staff. Many of them lost their obvious fear of the hospital as a vague, impersonal mechanism, and felt that the patient was in the kindly hands of friends. When death appeared to be only a matter of hours, the relatives again were notified and the family clergyman summoned. The frequent visits of the intern and the resident surgeon during these last hours offered further evidence that no resource of medical science was omitted in an effort to prolong the patient's life.

PLAN OF SOLICITATION

Request for autopsy is never made in the patient's room or in the ward. Such a request is best made in a part of the hospital not too intimately associated with the deceased person and among surroundings calculated to lend an air of grave responsibility and dignity to the interview. Further, a white uniform is not an asset to such a discussion. To many it is the badge of immaturity, the mark of an undergraduate clinical clerk. The interview is more likely to be successful if the doctor wears a business suit with or without the long white coat associated in the layman's mind with the maturity of an attending surgeon.

After a patient has died and the relatives have recovered from their first expression of grief, they are taken in charge by the nurse and brought to meet the resident surgeon at the office of the clinical director. In conducting the interview the doctor's manner should unite dignity, responsibility and sympathy. No reference to the purpose of the meeting should be made. The subject should arise apparently without premeditation, and in most instances the talk can be guided around to it so that it will be broached by the family. Their first question will be a desire to know why they have been brought there. The usual reply is: "I have sent for you to ask if I can help you in any way. Are there any questions you would like to ask about this patient?" They will usually wish to discuss the case in some detail. With the history of the patient before one, it is worth while to answer their direct questions. A few minutes may suffice to form a quick estimate of the psychological types among the members of the family. It quickly becomes apparent which one is the dominant personality in the group, and it is on this person that one's attention must be concentrated and toward whom most of the conversation must be directed. The salient points of the case should be illustrated from the chart. A concise summary should be presented in nontechnical language. This should include the possible etiologic factors, familial tendency or hereditary character, course of the disease, reason for operating, operative observations, pathologic report and postoperative course leading to the patient's death. Each of these aspects of the case presents mysterious elements. These may stir the relatives' curiosity enough to influence them to permit an autopsy for their elucidation. This summary may require about fifteen minutes. It is time well spent. It probably is the first time that the assembled family have had a clear conception of the patient's trouble and any accurate knowledge of what the doctor tried to accomplish. The vague resentment because the patient died is transformed into gratitude to the doctors for the effort they made to save him.

During this discussion the relatives will ask questions as to the etiology, extent of the disease, explanation of certain symptoms and actual cause of death. Many of these cannot be answered with absolute certainty, and the frank recital of the limited knowledge on these points in the case of this particular patient should be qualified by the statement, "What I have told you is my clinical opinon, what I believe we would find *if we were to make an examination.*" At this point the battle is joined. Any objection to such procedure is now made evident. One relative strongly opposed to autopsy can quickly bring the others to his side. Opposition must be met swiftly or all is lost. The effectiveness of the different arguments in favor of autopsy varies according to the psychologic mechanisms of the person to be convinced. It varies, therefore, according to age, sex, nationality, religion, education, past experience, prejudices and personality. On the accuracy with which one discovers these peculiarities depends the ability to select the appropriate argument, and thus to a great degree determines the chance of success. The ability to anticipate certain objections and eliminate them before they have been expressed enables one to prevent the implantation of a doubt in the minds of those heretofore favoring an autopsy. To do this one must watch them closely to detect evidences of conviction or opposition. It is sometimes best to maintain control of the discussion until the greater part of the argument has been presented; at other times, where the opposition is not too pronounced, it is better to let them talk. This is a delicate point, and confidence can be gained or lost by either step, depending on the correctness of one's judgment.

ARGUMENTS IN FAVOR OF AUTOPSY

Duty to Humanity.—Each person owes a duty to humanity to permit the postmortem study of the bodies of those who die. Medical science has reached its present high level of development because of the opportunities afforded for such study in the past. The increased average span of life today was purchased by the sacri-

fices of our forebears. We of the present generation must not halt this progress.

Determination of the Cause of Death.—The cause of death can be accurately determined. This is important to the family because of its bearing on familial or hereditary disease, cancer and occupational hazards and diseases or its relation to previous injuries, illnesses and operations. If there is any familial tendency to a particular disease, it should be discovered so that prophylactic measures may be taken to protect the children. It is of practical importance because it satisfies the insurance company of the true cause of death and serves to obviate litigation or delay in settlement. It will provide more accurate vital statistics, and improve the diagnostic ability of the doctors.

Extent of Disease.—This can be established and the cause of certain obscure symptoms discovered. Autopsy will thus disclose whether these were related to a single disease or to two or more separate pathologic processes.

Medicolegal Cases.—If one expects to bring suit to prove that this patient developed the disease from which he died as the result of injuries due to another's negligence, the best way to establish that contention is a thorough postmortem examination. The other party to the suit similarly may apply for a court order compelling such an autopsy. It is better for your contention that it be done here by a trained specialist so that his report may become a part of the deceased patient's hospital record.

Postmortem Examinations Not Unusual.—The practice is growing rapidly in America. In many countries it is compulsory. More than three quarters of the patients who die in this hospital are submitted to such examination. It is not limited to the poor and obscure; consent is just as readily obtained from the families of our private patients. Most great men are examined post mortem: Columbus, Napoleon, Lincoln, Garfield, McKinley and others.

Rarity of the Disease (when this is actually true).—The condition from which the patient died is one of great rarity. It is little understood. There have been no recorded cures. At the present time any one who develops this disease inevitably succumbs to it. So few cases occur that doctors have not had the opportunity to make a thorough study of it. It is imperative that every such case be thoroughly investigated so that eventually a cure may be found.

Aid to Research.—This is a research institution devoted to the study of tumors. Its clinical, radiologic, surgical, biologic, chemical, physical and pathologic departments are devoted to increasing our knowledge of these diseases. Generous gifts have supplied funds, equipment and trained personnel to that end. It is your privilege and solemn responsibility to provide the most necessary element—that one thing which money cannot buy—the actual material for study.

Evaluation of Treatment.—The patient was treated according to a technic which is still in the process of development. Some of the patients with similar disease treated by this means have been greatly benefited, and many are alive and have been apparently free from disease for nearly two years. But this death represents one of our many failures. Why did he die and these other patients recover? Would a change in our technic have produced a happier result? The only way that we ever shall work out the best method of treatment is by a study of those whom we fail to save.

COUNTER-ARGUMENTS AND THEIR REFUTATION

1. "I know, but I'd rather not permit it. Let some one else do it."

"Because for many centuries people refused such permission, medicine made no advance. Much progress remains to be made. Had we learned, from examinations made in the past, how to recognize the early clinical signs of this disease, your mother might have been saved."

2. "It will disfigure the body."

"The examination is done by a skilled specialist through a surgical incision which afterward is closed, as in an operation. The appearance of the body is enhanced rather than injured. Discoloration from the accumulation of blood is avoided. The drainage of this blood and the removal of clots from the vessels permits better circulation of the embalming fluid and results in better preservation of the body. Your undertaker will verify this for you if he is asked."

3. "But even such an incision is a mutilation."

"It is, but the mutilation, as you call it, is an ethical procedure carried out with proper respect for the dead, for the ultimate benefit of humanity."

4. "This is an ordinary case. You could never learn anything new from it."

"That is something no one can ever say. Many important observations and even great discoveries have come from cases which seemed in no way unusual."

5. "But cancer is hopeless. An autopsy would benefit no one."

"There are more than a thousand cases of cancer apparently cured more than five years among the patients of this hospital. The methods employed in treating these successful cases were developed by the study of just such cases as this."

6. "I do not think she would have wanted me to consent."

"I should not want you to consent unless you believed that she would have been eager to do this much to help those afflicted as she was."

7. "He has suffered enough."

"What we would do would not add to his sufferings. Let us be thankful that they are ended. But thousands of other human beings at this present moment are suffering as he did. How happy he would be if he could know that your consent might preserve someone else from similar misery."

8. "We are orthodox Jews and our religion forbids autopsies."

"The law in reference to autopsies among Jews has been discussed by many eminent Jewish leaders. Rabbi B. L. Levinthal of Philadelphia (quoted by Hammond[1]) has given his full approval to postmortem examination. He said: 'I desire to state unquestionably that the dissection of a corpse is not prohibited under the Jewish Rabbinic Law, where a reputable physician believes that it is essential for the advancement of medical science. Where a postmortem examination may result in the discovery of the origin or cause of some serious disease, it is my firm conviction that thus to serve humanity is sanctifying, rather than desecrating the dead.' The present chief rabbi[2] of the orthodox community of Jerusalem is on record as giving consent to postmortem examination.

"Dr. Jacob Z. Lauterbach,[3] an important Jewish scholar, stated that the only possible objection to postmortem examination would be based on an ancient Biblical law (Deuteronomy 21:23) recommending burial on the same day on which death occurred, but that 'to the practice of autopsy as such, one cannot find any express objection in the Talmud.' The following is quoted from his paper:

"'The supposition that a postmortem examination constitutes a disgrace to the human body has no real basis in Jewish literature. It is true that the Talmud assumes that to dissect and examine a dead body might be considered a

1. Hammond, F. C.: Overcoming Opposition to Autopsies, Mod. Hosp. **25**: 333, 1925.
2. Report of Committee on Postmortem Examinations of the American Hospital Association, 1930.
3. Lauterbach, Jacob Z.: American Israelite, Nov. 19, 1925.

disgrace to that body, which, of course, should be avoided. This, however, holds only in cases where it is done unnecessarily or for no good purpose. For in the same passage in the Talmud it is taken for granted that if such postmortem examination might possibly result in saving another man's life, we should by all means dissect and examine the dead body, so that we may possibly avoid the loss of another life. . . .

"'According to the Talmudic Rabbinic Law, all the laws of the Torah, excepting those against idolatry, incest and murder, may and should be violated, if necessary, for the saving of human life. According to this law, even if there were found a law prohibiting the dissecting of a human body, it would have to be ignored in favor of autopsy, which might lead to the saving of a human life.'

"Dr. Charles D. Spivak,[4] a noted Jewish scholar of Denver, has summarized the law as follows: 1. Autopsies are not permitted when they are an indignity to the dead. 2. Autopsies are permitted when they are an honor to the dead. 3. Autopsies are permitted when a human life can be saved thereby, for instance, when there is present a sick man who suffers from the same malady from which the deceased died. 4. Autopsies are not permitted for purely experimental purposes, i. e., when the sick are not before our eyes.'

"In this hospital, we have many patients suffering from the same disease. We are seeking a cure. To serve in any way to save these 'sick before our eyes' is not an indignity; it is an honor to the dead. Jewish hospitals like Mount Sinai, Montefiore and Michael Reese maintain a high percentage of postmortem examinations on their Jewish patients and are supported and encouraged to do so by the leaders of the Jewish faith."

MISTAKES TO BE AVOIDED

Before talking to the relatives it is important to review the deceased patient's history so as to be familiar with the details of the case. The value is twofold; a general plan of argument can be outlined, based on whatever unusual features of the case justify a postmortem examination; further, one avoids the betrayal of ignorance of the case and the development of any suspicion that the doctor's sole interest is to secure the body for experimentation.

Delay should be avoided. The most favorable time to make the request is usually from about fifteen minutes to half an hour after the patient has died. This is sufficient time to permit recovery from their first expression of grief and is too soon to allow vaguely formulated ideas of opposition to become too firmly rooted.

It is unwise to entrust the negotiations to lay friends of the family. Despite their best intentions, failure is the rule. No layman commands the respect accorded the doctor, nor can he so well present the arguments for a postmortem examination. Neither is he likely to prove sufficiently alert, persistent or persuasive in counter-argument to overcome the family's objections. It is helpful, however, to have the friend present at the interview to second the doctor's argument with a nod of assent and approval or an occasional word of gentle urging.

Interpreters are unreliable. The same objections prevail here as in the case of the family friend, with the additional disadvantage that one cannot understand the interpreter's attempt to present the case to the family. The argument suffers grievously in translation by garbling, abbreviation and the interjection of the interpreter's personal feelings in the matter. It is preferable to employ a member of the house or visiting staff familiar with the language.

4. Spivak, C. D.: Postmortem Examination Among the Jews, New York M. J. 99: 1185-1189 (June 13) 1914.

Unanimous consent of a large group of relatives is most difficult to obtain. A better plan is to select the strongest personality among them and talk to him privately. When he is thoroughly convinced, he may be delegated to persuade the others.

The interview should be characterized by quiet, unhurried dignity. The family should feel that the solicitor is there as a kindly, sympathetic friend to assist them with the final care of their loved one. High pressure argument, antagonism and quarreling have no place in this discussion and defeat its purpose. Unreasonable opposition must be disarmed by patient explanation which avoids giving offense or too much concession to an ignorant or antagonistic person. Loss of temper entails loss of respect and certain failure.

An impression of callous scientific curiosity may be created if permission for an autopsy is solicited before the patient has died. In general it should be avoided. It affords the family time to discuss the matter at home, where they are likely to decide definitely against it. One should, however, discuss the puzzling features of the case so as to prepare their minds for the suggestion of an examination to clear up these questions.

Euphemism of terms should be employed. It is better to avoid the use of words with gruesome connotations. For "autopsy," "inquest" or "necropsy," where possible, one should substitute "examination of the body." The family can be made aware of what is intended without receiving an impression of mutilation and horror. The difference between a postmortem examination and an anatomic dissection should be made clear.

At first one should make no direct reference to the extent of the autopsy to be done. In a majority of cases a complete examination will be permitted. The greatest opposition, naturally, is against opening the skull. When reluctance is apparent, it is better (unless special features of the case indicate that an examination of the skull would be of value) to intimate that, of course, the examination will be limited to the organs of body cavities and that the head and face will not be disturbed. It is important that the doctor make this statement before the family has voiced this objection, else his reassurance becomes a concession that savors of bargaining. Partial examination or inspection of wounds may be requested if more extensive procedures are refused. The family should be invited to return in two weeks to receive a copy of the autopsy report and to discuss its significance.

Professional Objections.—Doctors, dentists, nurses, undertakers and their relatives sometimes object to autopsies because of hearsay or personal experience with autopsies featured by carelessness, irreverence or disregard for the subsequent appearance of the body. It is helpful to have the pathologist at hand to give his assurance that he will personally perform the examination and to convince them that every precaution will be taken to improve the appearance and preservation of the body. Once this has been accomplished, one may employ whichever of the foregoing arguments are applicable to the case to convince the relatives of the necessity for the examination. The family should be reminded of the many instances of self-sacrifice in the life of the deceased and how appropriate it is that this last worldly contact should be a final act of altruism. If reluctance is still evident, one is justified in inviting the professional member of the family to attend the examination. This offer rarely is accepted although consent often is won by this evidence of good faith.

Additional Assistance.—Catholics grant a high percentage of autopsies. Their objections are usually based on sentiment. When difficulty is encountered, the parish priest can be relied on to aid in obtaining permission.

The family physician is a potent force and, if invited, will usually exert his influence with the family. The assurance that he will be present at the examination may obtain their consent.

When matters seem difficult, it is well to remind the family how the attending physician strove to aid the patient, how disappointed he was when he failed and how much it would mean to him to be allowed to verify his diagnosis, to make certain that everything possible had been done for the patient and to increase his knowledge of such cases so that the next one might end more favorably. If still reluctant, the doctor mentioned should be called to emphasize these points in person.

SOLICITATION BY TELEGRAPH

When no relatives are present at the time of death a telegram should be sent to the next of kin recorded on the patient's history. In a splendid article on the subject, Mills [5] suggested the following wording:

> Mr. ..... died (suddenly) this morning. Not necessary to come. We can make all arrangements. Wire complete instructions for embalming and shipping. State limit of expenditure for furnishings. Important to authorize examination of the body.
>
> (Signed) ..... M.D.

In case the reply omits the permission a second message is suggested as follows:

> Instructions received; will execute them fully. Undertaker (mention name) will communicate direct. Government expects accurate diagnosis for death certificate. Clinical diagnosis inadequate. Please wire consent for examination collect. Body not disfigured; preservation improved.
>
> (Signed)..... M.D. (same name as that used before).

COOPERATION WITH UNDERTAKER

The undertaker usually will lend his support by reassuring the family that the procedure will not interfere with the embalming process or with the appearance of the body. Points of importance in developing and holding his loyalty are the following:

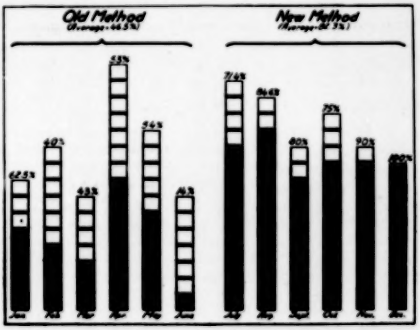
> Conservation of the undertaker's time by prompt delivery of the death certificate to him, by performance of the autopsy as soon after death as possible and by delivery of the body to him at a specified time.
>
> Careful restoration of the body to as nearly normal condition as possible by keeping the head and shoulders raised so as to facilitate the drainage of blood; limiting the incisions to the requirements of the case (from the suprasternal notch to the pubis in men; from beneath the breasts to the midline, to the pubis in women). The circulation of the head and arms should be kept intact by ligating the left carotid, left subclavian and innominate arteries. The stumps of the esophagus, trachea and rectum should be tied off so as to prevent leakage. If the brain is removed the carotids should be ligated within the cranium and the cavity filled with plaster of paris; there should be careful approximation of the skull cap so as to prevent displacement. The head and face should be protected so that pressure marks are not produced. The undertaker should be afforded the use of the morgue where he may embalm the body.

RESULTS

The foregoing procedure in soliciting permission for postmortem examination was established at the Memorial Hospital on July 1, 1932. During the preceding six months (from January 1 to June 30) there were fifty-eight hospital deaths. From this number of possibilities twenty-seven autopsies were obtained. The monthly percentage varied from 14 to 62.5, and the average for the six months period was 46.5. Twelve of these patients were Jewish, from which number, one permission for autopsy was obtained (8.3 per cent).

During the next six months (from July 1 to December 31, during my incumbency), there were seventy-one deaths in the hospital. Relatives of three of these patients could not be located, so that there was no opportunity to solicit permission for autopsy. Fifty-six autopsies were obtained from this group of sixty-eight cases by the method described. Two of the deceased patients came from distant cities. Permission was requested by telegraph and consent obtained for both. Four families were solicited by telephone, and three of them consented to the examination. The monthly percentage varied from 71.4 to 100, and the average for the six months period was 82.3.

Sixteen patients were Jewish, in which group ten autopsies were granted. Fifty-two patients were Christians, from which number forty-six autopsies were



Autopsy record of the Memorial Hospital for 1932. The open squares indicate autopsies refused; the black squares, autopsies obtained.

secured. The Jewish group constituted 24 per cent of the total number and yielded an autopsy percentage of 62.5. The Christian group constituted 76 per cent of the total number and granted 89 per cent of autopsies. The rate among the Jewish patients was about two-thirds that of the others, but the figure (62.5 per cent) given constituted a sevenfold increase over the preceding six months, an improvement ascribed to tactful handling of the family and the religious question involved. As shown in table 1, there were 32 Protestant families, with 27 autopsies (84 per cent), and 20 Catholic families, with 19 autopsies (95 per cent).

Table 2 analyzes the effect which the kinship of the person solicited has on the percentage of autopsies granted. The percentage figures are so high that they do not reflect the variations in difficulty encountered. In general, the closer the relationship, the greater will be the objection to autopsy. Men, as a rule, take a broader and more impersonal view and usually are more reasonable and less skeptical of human motives than are women. Experience reveals that husbands, fathers, brothers and sons present less difficulty than do the corresponding feminine relatives. Nevertheless, tactful

5. Mills, Ralph C.: Means of Securing Post-Mortem Examination, Bull. Am. Coll. Surgeons **14**: 40-57 (Dec.) 1930.

persuasion and persistence usually prevail. Thus one notes that nearly equal numbers of autopsies were obtained from both sexes, twenty-nine from male relatives and twenty-seven from female relatives.

All Germans, Danes, Irish, Negroes and all Italians but one consented to autopsy. Six Jews refused because of religious and sentimental reasons. Six Christians withheld permission, three because of sentiment, one because of previous unsatisfactory experience with autopsies and one because the patient had exacted a promise not to permit it. One other attempt failed because it was impossible to obtain unanimity among thirteen assembled relatives.

Search for the most potent reason impelling consent to autopsy leads to the conviction that in most instances it is based on gratitude. This is cultivated during the patient's stay in the hospital by numerous instances of kindness and consideration. It is roused to its greatest power at the interview by the sincere, sympathetic and skilful persuasion of the solicitor. A high percentage of autopsies obtained in this manner testifies not only to the efficiency and scientific interest of the hospital staff but equally to the maintenance of cordial relations with the public.

TABLE 1.—*Religious Composition of Families Solicited*

Religion	Number	Autopsies	Percentage
Christian	52	46	89.0
Protestant	32	27	84.0
Catholic	20	19	95.0
Jewish	16	10	62.5

TABLE 2.—*Effect of Relationship on Granting Permission*

Relationship	Number	Autopsies	Percentage
Husbands	10	8	80.0
Wives	18	15	83.3
Fathers	3	2	66.6
Mothers	5	4	80.0
Brothers	8	6	75.0
Sisters	3	3	100.0
Sons	15	12	80.0
Daughters	4	4	100.0
Executor	1	1	100.0
Executrix	1	1	100.0

SUMMARY

The importance of autopsies in the instruction of students, development of new methods of treatment, verification of diagnoses, accumulation of accurate statistics and furtherance of research is emphasized.

The reasons underlying failure to obtain permission for postmortem examination are classified and discussed. A detailed plan of solicitation is described. This procedure is based on: unity of responsibility for securing permission for autopsy; cultivation of friendly relations between the family and the hospital personnel; a courteous and frank statement of the patient's condition while in the hospital; a prompt approach to the family after the death of the patient; a dignified, kindly and sincerely sympathetic manner during the interview; a frank discussion of the case; a tactful presentation of arguments for autopsy found by experience to be effective and the counter-arguments designed to refute the objections raised by the family. These arguments and counter-arguments are summarized, including expressions from leaders of the Jewish religion favoring postmortem examination and disavowing the frequently heard statement that autopsies are forbidden by Jewish rabbinic law.

The results of this plan of solicitation are reported. Prior to the development and adoption of this procedure, the percentage of autopsies at the Memorial Hospital was 46.5. During the six months period following the development of this plan the percentage of autopsies was nearly doubled. The monthly averages varied from 71 to 100 per cent, the average for the whole period being 82.3 per cent. The percentage of autopsies obtained from Jewish families was increased nearly sevenfold (from 8.3 to 62.5). Christians granted permission for postmortem examination in 89 per cent of cases.

Regardless of nationality, race or religion, the chief reason impelling consent to autopsy was the family's gratitude for numerous acts of kindness and consideration, roused to its greatest power by the sincere sympathy and skilful persuasion of the solicitor.

ABSTRACT OF DISCUSSION

DR. F. W. HARTMAN, Detroit: Dr. Hoffman's suggestion that the resident is a good person to obtain the permission is excellent. When the younger men are allowed to obtain permission, it is along the latter part of their intern year that they begin to get a high percentage of examinations. In some places this function is left to an organization in the department of pathology, and that is very successful because it is continuous over a period of months or years. Wherever the responsibility is placed, the percentage of autopsies will be in direct proportion to the feeling of the head of the department. If that chief is not enthusiastic and insistent on autopsies, the chances are that the percentage from his department will fall down. Next in importance for obtaining autopsies is the undertaker, who frequently makes the contact within half an hour or an hour after death. The antagonism of the undertaker frequently prevents the permission being obtained. It isn't the intelligent, well informed undertaker, but one who is poorly educated, not so sure of his technic, that is afraid to embalm a body after a necropsy. I have found that the best way to bring this type of undertaker into line is for the pathologist to make some sort of contact with the undertakers' organizations, talk over the problems in common meeting, and make some tentative agreement as to what shall be done and how it shall be done. A grievance committee may be established composed partly of pathologists and partly of undertakers, so that misunderstandings may be thrashed out and so that uncooperative undertakers may be brought into line. Dr. Hoffman laid emphasis on the clinical diagnosis and on letting the patient's relative know that perhaps the clinical diagnosis was not satisfactory. I think that is dangerous in many cases. The clinicians frequently will construe it as a reflection on their work, and the patient's relative will frequently come back for a complete review of the case. It is always well to avoid that argument if possible.

DR. ISRAEL DAVIDSOHN, Chicago: Dr. Hoffman emphasized that by the use of proper procedures the increase of permissions was striking, even among Jewish patients. In the experience of those familiar with conditions in Jewish hospitals, that is not unique. The percentage of postmortems in institutions such as the Mount Sinai Hospital in New York and the Michael Reese Hospital in Chicago compares favorably with other hospitals of similar standing. In the Mount Sinai Hospital in Philadelphia, with 78 per cent of Jewish patients, a low percentage of permissions was obtained until 1927, when, as a result of a campaign, the proportion began to rise rapidly till it surpassed 60 per cent in 1930 when I left Philadelphia. The increase has been continuing steadily. The Mount Sinai Hospital in Chicago, with about 99 per cent of Jewish patients, was dropped early in 1930 from the list of hospitals approved for internship by the American Medical Association, on account of its low percentage of postmortem examination. As a result of effort on the part of the administration and the staff, the percentage was raised and the hospital was promptly reinstated. It is fair to conclude that the opinion that it is extremely difficult to get permissions for postmortem examinations from Jewish patients is not well borne out by facts. A few words

about the obstacles encountered while attempting to raise the percentage of postmortems: Pathologists can share in arousing greater interest in postmortems among physicians by laying greater stress on the correlation of the clinical and pathologic aspects of the postmortem observations. During our campaign in Philadelphia, the members of the attending staff signed permissions for postmortems on themselves. The presentation of such a permission has not infrequently been the most potent argument. We have also found that procedure of great help in Chicago.

DR. WILLIAM J. HOFFMAN, New York: In regard to the discussion by Dr. Hartman: In New York a joint committee has been formed consisting of members from the New York Academy of Medicine, the New York Pathological Society and the Metropolitan Funeral Directors Association. Cordial relations prevail among these groups and a code has been drawn up embodying suggestions for close cooperation between hospital authorities and funeral directors. Posters containing these suggestions are sent to all hospitals and are displayed in the autopsy rooms of the hospitals. The poster contains a diagram of the incisions that are approved by the undertakers and contains a list of nine technical suggestions which contribute to the better preservation of the body and aid the undertaker to improve its appearance. The discussion of the clinical diagnosis with the families of patients in general hospitals must be conducted with great caution, lest one seem to question the diagnosis of the attending physician. In a special cancer hospital this danger is less serious because the family has usually been already informed that the patient had cancer. The final pathologic diagnosis which the family receives after the autopsy is simply an elaboration of what has already been told. It sometimes includes, in addition, an explanation of certain terminal phenomena that the clinician himself was unable to explain during the illness of the patient. I agree with Dr. Hartman that the matter must be handled with great delicacy.

PRESENT STATUS OF THE BIOPSY

A. B. McGRAW, M.D.
AND
F. W. HARTMAN, M.D.
DETROIT

Notwithstanding the advances which are steadily taking place in knowledge of the chemistry, serologic nature and biology of tumors, gross morphology and, more especially, microscopic morphology remain our best means of determining their histogenesis, classification, activity and prognosis. The diagnostic application of this morphologic knowledge lies in the procedure known as biopsy. Though this word strictly includes the removal of any tissue from a living subject for diagnostic examination, usage has tended to confine it to the examination of tumor tissue suspected of having malignant qualities.

About the middle of the nineteenth century the idea of biopsy began to be voiced in independent reports or suggestions by various authors here and abroad, among them Sédillot,[1] Marmy [2] and Lebert [3] in France, Hannover [4] in Denmark and Donaldson [5] in this country. It was Virchow,[6] however, who first laid the rational foundation of the procedure as a diagnostic aid to treatment when, in 1854, he demonstrated microscopically that excision was the proper treatment for malignant tumors because of the possibility of their complete eradication in the early localized stage of the disease. Later on Virchow [7] became skeptical regarding the superiority of microscopic to gross pathologic diagnosis, and so great was his authority that satisfactory progress in the use or development of the biopsy was greatly hindered. True recognition of its value and possibilities came early in this century owing largely to the pioneer work of Wilson [8] and the numerous carefully reasoned articles of Bloodgood,[9] Ewing,[10] MacCarty [11] and Wood.[12] Concurrent efforts made to educate, through publicity, both the laity and the medical profession regarding cancer began more and more to bring early and often doubtful lesions to the attention of physicians, and this helped to stimulate interest and effort in earlier and more accurate diagnosis of tumors. In 1917 the question of biopsy was brought to a controversial focus through offers of the New York City Board of Health and the Cancer Committee of Harvard University of free microscopic diagnosis on pieces of tissue submitted by practitioners. This offer had the support of the American Society for the Control of Cancer [13] and of well known pathologists, but in some quarters it was bitterly denounced. The opinion of a qualified group of surgeons, as collected and tabulated by Greenough,[14] was divided, but was generally in favor of biopsy with certain restrictions and conditions.

Among various objections to biopsy, two were mainly raised. One alleged that incision of a malignant tumor stimulates local growth, the other that incision disseminates tumor cells. The first of these objections had already been answered by the experimental work of Tyzzer [15] and Lubarsch,[16] and later in Knox's [17] review of the subject of the relation of trauma to the occurrence and growth of tumors. Experiments conducted by Nather [18] and interpreted as indicating an increase

Read before the Section on Pathology and Physiology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

1. Sédillot, C. E.: Researches in Cancer, Strasbourg, 1846.
2. Marmy: The Utility of Microscopic Observation in the Diagnosis of Cancer, Rev. méd. chir. de Paris **1**: 215, 1846.
3. Lebert, H.: A Practical Treatise on Cancerous Diseases and Those Curable Affections Confused with Cancer, Paris, J. B. Baillière et fils, 1851.
4. Hannover, Adolph: Epithelioma, An Independent Neoplasm, Which Until Now Has Generally Been Considered Cancer, Leipzig, Leopold Voss, 1852.
5. Donaldson, F.: The Practical Application of the Microscope to the Diagnosis of Cancer, Am. J. M. Sc. **25**: 43 (Jan.) 1853.
6. Virchow, R.: Handbuch der speciellen Pathologie und Therapie, Erlangen, 1854.
7. Virchow, R.: Diagnosis and Prognosis of Carcinoma, Arch. f. path. Anat. **111**: 1, 1888.
8. Wilson, L. B.: A Method for the Preparation of Fresh Tissues for the Microscope, J. A. M. A. **45**: 1737 (Dec. 2) 1905; The Microscopic Examination of Fresh Tissue for Diagnosis, St. Paul M. J. **15**: 274 (May) 1913; Staining Sections of Living Tissue, Unfixed, J. Lab. & Clin. Med. **1**: 40 (Oct.) 1915; The Microscopic Examination of Fresh Tissue, Tr. South. S. A. **37**: 241, 1924.
9. Bloodgood, J. C.: Diagnosis and Treatment of Borderline Pathological Conditions, Tr. Am. S. A. **31**: 356, 1913; Danger of Incomplete Removal of Small and Apparently Innocent Lesions and the Problems of Biopsy, Surg., Gynec. & Obst. **44**: 413 (March) 1927; Biopsy in the Diagnosis of Malignancy, South. M. J. **20**: 18 (Jan.) 1927; Question of Tissue Examination and Diagnosis in the Operating Room, Tr. A. M. A., Sect. Path. & Physiol. 1927, p. 100; Tissue Diagnosis in the Operating Room, Tr. South. S. A. **40**: 191, 1927; Tissue Diagnosis in the Operating Room, South. M. J. **21**: 179 (March) 1928; Biopsy in the Treatment of Malignancy, J. Lab. & Clin. Med. **16**: 692 (April) 1931.
10. Ewing, James: The Incision of Tumors for Diagnosis, New York M. J. **102**: 10 (July) 1915; Letter to the Editor, Med. Rec. **91**: 376 (March) 1917; Aims and Methods of Cancer Diagnosis, ibid. **98**: 200 (July) 1920; The Diagnosis of Cancer, J. A. M. A. **84**: 1 (Jan. 3) 1925; Causation, Diagnosis and Treatment of Cancer, Baltimore, Williams & Wilkins Company, 1931.
11. MacCarty, W. C.: Efficiency in the Diagnosis of Neoplasms, Surg., Gynec. & Obst. **35**: 209 (Aug.) 1922; The Cytologic Diagnosis of Neoplasms, J. A. M. A. **81**: 519 (Aug. 18) 1923; The Early Diagnosis of Cancer, Arch. Clin. Cancer Research **1**: 11 (Jan.) 1925; A Cytologic Key to the Diagnosis and Prognosis of Neoplasms, J. Lab. & Clin. Med. **13**: 354 (Jan.) 1928; Indications and Rules for Biopsy, Proc. Staff Meet., Mayo Clin. **4**: 61, 1929; The Doctor's Practical Relation to the Cancer Problem, Bull. Am. Soc. Control Cancer **15**: 1 (May) 1933.
12. Wood, F. C.: Biopsy in the Diagnosis of Tumors, Am. J. Cancer **13**: 2798 (Oct.) 1931; The Experimental Pathology of Cancer, J. A. M. A. **84**: 4 (Jan. 3) 1925.
13. Bristol, L. D.: Free Tumor Diagnosis as a Function of State Public Health Laboratories, J. A. M. A. **66**: 1678 (May 27) 1916.
14. Greenough, R. B.: The Handling of Early and Doubtful Cases of Cancer, Ann. Surg. **66**: 385 (Oct.) 1917.
15. Tyzzer, E. E.: Factors in the Production of Metastases, J. M. Research **28**: 309 (July) 1913.
16. Lubarsch, O.: The Significance of Trauma in the Origin and Growth of Malignant Tumors, Med. Klin. **8**: 1651 (Oct.) 1912.
17. Knox, L. C.: Trauma and Tumors, Arch. Path. **7**: 274 (Feb.) 1929.
18. Nather, K.: Biopsy in Malignant Tumors in Surgery and Experiment, Arch. f. klin. Chir. **119**: 64, 1922.

of tumor growth following incision are not convincing. The second objection has been answered satisfactorily by Wood [19] as far as biopsy on experimental tumors is concerned. In two large groups of rats, simultaneously inoculated with one of two varieties of sarcoma normally prone to produce metastases, he found no more metastases in the biopsied rats than in those whose tumors were excised on the day the biopsy was made. On the other hand, Knox [20] and Tyzzer [15] showed independently that massage of mouse or rat tumors forced showers of tumor cell emboli into the lungs and greatly increased the incidence of metastases. On the clinical side, a satisfactory refutation of the numerous reports in the medical literature of isolated cases or small series of various misfortunes following biopsy is made in the statement of Roux-Berger.[21] In a consecutive series of 825 cases of lingual cancer reported from the Curie Institute of Paris, where no patients are treated without biopsy, he found no evidence of harm from the careful diagnostic excision of tissue.

Advances in methods of rapidly sectioning and staining biopsy material have been developed in this country mainly by Wilson, MacCarty and Bloodgood in the application of the freezing microtome to fresh unfixed tissue; by Warthin [22] in his twenty-four hour method for quick fixation, embedding, sectioning and staining, and by Terry [23] in the surface staining of fresh, unfixed, thick sections examined by transmitted light. In the foreign literature E. H. Shaw [24] reported a method not unlike Wilson's, and Hoffheinz [25] favored the older method of quick fixation in hot formaldehyde before freezing and sectioning. Dudgeon and Patrick [26] reported satisfactory results from stained films of surface scrapings from incised tumors. Dengler [27] advocated teased-out bits of tissue coverslipped and treated with 1 per cent acetic acid to accentuate cell detail. Schultz-Brauns [28] has made the ingenious suggestion that maintaining the low temperature of a thin frozen section by using a thoroughly chilled microtome knife causes such firm and unwrinkled adhesion to a glass slide that staining is both facilitated and improved. Leroux [29] described surface illumination of surface-stained thick sections by a small electric bulb built into and operating through the objective of the microscope. Mandelbaum,[30] Quesnel [31] and Zemansky [32] have each described ingenious methods for fixing and staining the cells of pleural and peritoneal exudates.

Within the past few years, in addition to numerous articles restricted to the application of the biopsy in some special field, comprehensive surveys of the entire question with extensive bibliographies have appeared in the German literature by Baumecker [33] and Batzdorff,[34] in the French by Robert [35] and recently in the American literature by Hellwig.[36] In spite of all this published material, there are certain aspects of biopsies which may properly be emphasized at this time.

THE RELATION OF BIOPSY TO OTHER DIAGNOSTIC PROCEDURES

Although the general clinical aspect of cancer is by no means a completely explored territory, it is sometimes a neglected one. Not only is this true of deep-seated or obscure growths, but it is especially true in the case of small surface lesions in which biopsy information is easily obtained and so often is quickly conclusive. Whether a patient presents a visible, palpable lesion, large or small, or only suggestive symptoms of internal cancer, no form of local examination is properly made without an accompanying clear, searching history and careful general physical examination supplemented by appropriate laboratory investigations. For the local lesion itself, close critical inspection and palpation described in accurately comparable terms are nowhere more important than in malignant conditions. The biopsy should never replace or precede other clinical methods of diagnosis, but should rather be used to supplement them by confirming or disproving the clinical diagnosis, as is the case in all other laboratory procedures. The relation of biopsy to roentgen diagnosis differs from its relation to clinical diagnosis in that the x-ray film frequently offers an entirely different and often satisfactory method of objective diagnosis and permanent record, as in the case of certain tumors of the bone, thus making biopsy unnecessary. Again the relative merits and indications of therapeutic tests in relation to biopsies are matters that have been given comparatively little attention. A therapeutic test in the form of antisyphilitic treatment may be used legitimately in early testicular tumors and certain lesions of the periosteum and bone in the presence of untreated syphilis. In the form of radiation therapy it may be used in suspected Ewing's sarcoma of the bone and in suspected lympho-epithelioma, lymphosarcoma and Hodgkin's disease. In all of the lesions cited the therapeutic test should precede biopsy, and, if prompt response to therapy results, the biopsy may be dispensed with.

COOPERATION BETWEEN WELL TRAINED SURGEONS AND PATHOLOGISTS

Cooperation between surgeons and pathologists is essential for obtaining satisfactory biopsy material. In the first place, it is obvious that unless the surgeon has a good knowledge of pathology, he will be unable to recognize and differentiate neoplasms grossly, and he will surely fail frequently in the selection of proper portions of the suspected lesion for microscopic examination. Further, this knowledge of pathology is necessary if the surgeon is to recognize properly the problem of the pathologist. The arbitrary attitude of some surgeons that pathology is a mathematical science in which any trained technician can find the correct answer not only makes the work of the pathologist unpleasant, but

19. Wood, F. C.: Diagnostic Incision of Tumors, J. A. M. A. **73**: 764 (Sept. 6) 1919.

20. Knox, L. C.: Relationship of Massage to Metastasis in Malignant Tumors, Ann. Surg. **75**: 129 (Feb.) 1922.

21. Roux-Berger, J. L., and Monod, O.: Imaginary Dangers of Biopsy, Bull. et. mém. Soc. nat. de chir. **54**: 1232 (Nov. 24) 1928.

22. Warthin, A. S.: The Clinical Laboratory as an Aid to Surgery, J. Lab. & Clin. Med. **16**: 743 (May) 1931.

23. Terry, B. T.: Polychrome Methylene Blue Used to Help Locate Malignancy in Tissues to be Examined Microscopically, J. A. M. A. **80**: 1774 (June 16) 1923; A New and Rapid Method of Examining Tissue Microscopically for Malignancy, J. Lab. & Clin. Med. **13**: 550 (March) 1928.

24. Shaw, E. H.: Immediate Microscopic Diagnosis of Tumors at Time of Operation, Lancet **1**: 218 (Feb. 3) 1923.

25. Hoffheinz, S.: Technic of Quick Histological Diagnosis, Zentralbl. f. Chir. **54**: 2498 (Oct. 1) 1927.

26. Dudgeon, L. S., and Patrick, C. V.: A New Method for Rapid Microscopical Diagnosis of Tumours, Brit. J. Surg. **15**: 250 (Oct.) 1927.

27. Dengler, R.: Rapid Histological Diagnosis of Malignant Tumors, Zentralbl. f. Gynäk. **53**: 457 (Feb. 23) 1929.

28. Schultz-Brauns, O.: A New Method for Quick-Frozen Unfixed Sections, Klin. Wchnschr. **10**: 113 (Jan.) 17, 1931.

29. Leroux, R.: A New Technic for Rapid Histological Examination, Bull. d'Assoc. franç. p. l'étude du cancer **20**: 698, 1931.

30. Mandelbaum, F. S.: Paraffin Sections of Centrifuged Exudates, J. Lab. & Clin. Med. **2**: 580 (May) 1917.

31. Quesnel, J.: Diagnosis of Cancer from Tumor Cells in Exudates of Serous Cavities, Acta med. Scandinav. **53**: 765, 1921; abstr., J. A. M. A. **76**: 903 (March 26) 1921.

32. Zemansky, A. P., Jr.: Examination of Fluids for Tumor Cells, Am. J. M. Sc. **175**: 489 (April) 1928.

33. Baumecker, H.: Biopsy in Surgery: Its Technic, Indications and Contraindications, Ergebn. d. Chir. u. Orthop. **24**: 109, 1931.

34. Batzdorff, E.: Dangers and Values of Biopsy, Beitr. z. klin. Chir. **146**: 207, 1929.

35. Robert, P. F.: On the Subject of Biopsies, Thesis, Paris, 1923, no. 416.

36. Hellwig, C. A.: Biopsy in Tumors, Arch. Path. **13**: 607 (April) 1932.

unscientific and often inaccurate. The pathologist, on the other hand, should have a broad training and experience in both gross and microscopic examination, which can be acquired only by the observation of a large amount of fresh surgical material through a period of years.

The pathologist's experience will be particularly helpful to the surgeon if it includes the clinical observations of neoplasms of all kinds. With such experience the pathologist, working at the elbow of the surgeon, can be of great assistance in the gross differential diagnosis of the lesion and in the selection of material for microscopic diagnosis, and can render a far more valuable opinion as to diagnosis and classification. Such cooperation of the surgeon and pathologist is essential for the best results and can be obtained, of course, only when the pathologist is always available during an operation.

OBTAINING BIOPSY MATERIAL

Advances in the technic of obtaining biopsy specimens may be correlated mainly with the development of new instruments. The various endoscopic instruments have made biopsies from the larynx, esophagus, urinary bladder and lower bowel possible, but they have thereby added much to the burdens of the surgeon and pathologist because the material obtained is necessarily limited in amount and, unless properly selected by an operator who has a good knowledge of gross pathologic changes in his particular field, is more apt to give a misleading picture and a false sense of security than an accurate diagnosis. The pathologist, although properly trained, may be led into error not only because of the small size of the tissue obtained, but also because it is too often from the surface of the lesion and does not show adequately the deeper structure of the tumor or its relation to normal surrounding tissue. Further, the pathologist too frequently feels obligated to give an opinion despite the fact that he knows the tissue submitted is inadequate. In this case the greatest service will be rendered by his reserving opinion and requesting more tissue.

The needle puncture method of Martin and Ellis [37] and the punch biopsy method of Hoffman [38] offer new opportunities of obtaining tissue from deep-lying growths without cutting operations. Their chief applications would seem to be, first, in late lesions in which infection and ulceration might conceivably result from incision, and, second, in deep-lying lesions in which radiation might be the method of choice in treatment. The general objections to these methods are, first, that to obtain satisfactory specimens considerable special training and practice on the part of the operator are required, and, second, that the interpretation of the material obtained imposes like requirements on the pathologist. Those who are competent to diagnose tumor tissues when obtained and prepared in the usual manner will need readjustment of their criteria, as well as additional experience with this particular method, before placing reliance on it.

The cautery loop may be used in place of the knife in obtaining biopsy material, but distortion of the tissue from the heat must be avoided. While the white hot cautery loop cuts more like the knife and gives little distortion, dull red heat seals lymphatics better, but always ruins small bits for microscopic examination. The higher temperature for excision followed by a lower temperature for sealing the lymphatics and blood vessels seems the best way for employing this method. Similarly, the electrodesiccating current, applied by a narrow blade or a stiff wire loop and followed by electrocoagulation of the denuded surfaces, is an equally useful substitute for excision by a knife. Like the thermal cautery, it has the advantage of applying minimal pressure to tissues in the course of cutting. It is doubtful, however, whether a sharp knife, gently used and followed by chemical cauterization, is essentially less safe than more complicated methods.

The influence of the location and size of a given lesion is frequently the determining factor in the selection and technic of a particular method of biopsy. Foregoing detailed consideration, the following generalizations are submitted as of basic importance: Whenever the size, nature and location of a lesion, whether cutaneous, subcutaneous or mucosal, are such as to admit of its complete and wide removal without mutilation and without resort to major surgical intervention, such complete removal is decidedly preferable to a biopsy. Again, every biopsy, whatever its location, should be conducted with all the care of a major surgical procedure with reference to strict asepsis, sharpness and appropriate selection of instruments, adequate exposure and illumination, and with the greatest precision and gentleness in technic. The danger from frequent or rough palpation of tumors or lymph nodes holds with equal force in the manipulations incidental to removing a biopsy specimen. Lastly, a clear description of its source, its relation thereto and the method by which it was obtained should accompany every biopsy to the pathologist who is to examine it.

SECTIONING AND STAINING OF BIOPSIES

It is not within the province of this paper to discuss the details of sectioning and staining methods, but it is necessary to emphasize the importance of using some method of quick fresh frozen sections followed by a method for permanent fixed preparations. At the present time, the fresh frozen method or vital staining method is necessary to show, as MacCarty has pointed out, the characteristics of the living cells and their relation to each other and to their stroma. Fixed permanent sections — the fixed frozen, the paraffin-embedded or the celloidin-embedded variety — are equally essential as a check on quick sections and for repeated study, review, filing and photomicrography. When tumors prove to be unusually soft and cellular, with relatively little stroma, Warthin's method of quick fixing and embedding may be used to advantage, as a substitute for the frozen section.

Methods vary according to country, locality and institution, but the essential thing is for the pathologist to try various methods as they are proposed without prejudice and then choose the fresh frozen method and the fixed tissue method he can use most effectively from the standpoint of his training, experience and equipment.

It has always been a disadvantage for the pathologist to leave the operating room to cut the tissue and prepare the sections. In 1927 Bloodgood [39] developed and described a table with wheels equipped for carbon dioxide freezing, sectioning and staining. It could be wheeled from one operating room to another. The advent of the dry-ice freezing stage for the microtome has greatly simplified and reduced the bulk and weight

37. Martin, H. E., and Ellis, E. B.: Biopsy by Needle Puncture and Aspiration, Ann. Surg. **92**: 169 (Aug.) 1930.

38. Hoffman, W. J.: New Technic and Instrument for Obtaining Biopsy Specimens, Am. J. Cancer **15**: 212 (Jan.) 1931; Punch Biopsy in Tumor Diagnosis, Surg., Gynec. & Obst. **56**: 829 (April) 1933.

39. Bloodgood (footnote 9, fifth reference).

of the necessary equipment. If to the freezing, sectioning and staining equipment a simple projection apparatus is added, the pathologist can readily do all his work in the operating room, and a microscopic section may be demonstrated to the entire operating team, thus adding to the knowledge of the case in hand, as well as teaching and stimulating interest in pathology.

THE RELATION OF BIOPSY TO TREATMENT

In spite of the perennial outcroppings of serum, chemical and endocrine, and other alleged cures for cancer, thorough surgical excision, radium or the roentgen rays singly or combined remain the only three weapons in cancer therapy that have stood the test of time and of accumulating accurate follow-up records. Their acceptance today is general and almost axiomatic, and much progress has been made in convincing the public and the medical profession of the advantages of their early use. It is not as generally recognized that the first attack on cancer not only should be early, but should be complete in kind and scope for the particular lesion. Nor is it recognized that in the estimation of such mass-attack treatment, biopsy information is of vital importance. The work of Broders,[40] Ewing [41] and Regaud and Lacassagne [42] tends to show that an adequate morphologic study of a tumor will indicate its histogenesis and degree of malignancy, including the metastasizing power and radiosensitivity. Hence this feature of the biopsy assumes an importance in our fight for better results in cancer therapy second only to that of educating the medical profession and the public to early and correct diagnosis.

CONCLUSION

A consideration of the interrelationships of the various aspects of the question of biopsy on which we have just dwelt indicates clearly the ideal conditions under which they may be obtained, namely, the tumor clinic, operating either as a separate hospital or perhaps better as a complete unit of a general hospital where surgeon, pathologist and radiologist, backed by optimum equipment and freed to some extent from encumbrances of other work, may cooperate to give patients by far their best chance of a cure. At present, owing to the prohibitive expense of complete equipment, these ideal conditions exist in so few places that they are available to a relatively small percentage of all patients with cancer.

Further consideration also suggests that there are distributed throughout this country enough hospitals with adequately trained pathologists, surgeons and radiologists sufficiently accessible by modern methods of transportation to offer to a high percentage of patients with cancer, quick biopsy, adequate surgical treatment and, for many, adequate irradiation treatment. Where such facilities exist there is little excuse for making use of a delayed biopsy.

There remain, however, far too many patients with cancer living where such facilities do not exist to disparage or condemn entirely the delayed biopsy. Its field of usefulness, however, is limited, and it should never be resorted to merely for the sake of establishing a diagnosis; i. e., never, without some plan for treatment mapped out by the physician and accepted in advance by the patient, should the diagnosis indicate a malignant condition.

SUMMARY

1. The worth of the biopsy in diagnosis, prognosis and as an index for treatment is at present thoroughly and soundly established.

2. Properly conducted, its lack of danger is likewise established. Its few contraindications are well known and recorded.

3. Its status as a technical procedure, though clearly allowing of future improvement, has attained a satisfactory level of combined simplicity in procedure and materials and of reliability in preparation.

4. Its opportunities for future development and practice under optimum conditions lie largely in stimulation of interest and furnishing of facilities for more pathologists and surgeons to devote the time and hard work necessary to perfect themselves in the difficult field of tumor pathology.

40. Broders, A. C.: Squamous-Cell Epithelioma of the Lip, J. A. M. A. **74**: 656 (March 6) 1920.

41. Ewing, James: Neoplastic Diseases, ed. 3, Philadelphia, W. B. Saunders Company, 1928.

42. Regaud, C., and Lacassagne, A.: The Histophysiological Effects of the Roentgen and Becquerel-Curie Rays on the Normal Adult Tissues of Higher Animals, Arch. Inst. du radium de l'Univ. de Paris **1**: 1, 1927. Regaud, C.: Value of Institutions for Radium and X-Ray Treatment, Surg., Gynec. & Obst. (supp. II) **44**: 116, 1927.

ABSTRACT OF DISCUSSION

DR. WILLIAM CARPENTER MACCARTY, Rochester, Minn.: Biopsy as an essential part of diagnosis has been a major principle in the Mayo Clinic for over a quarter of a century. It has four distinct functions: differential clinical diagnosis, research, prognosis and the direction of therapy. Since there are no reliable clinical or serologic tests for the recognition of early cancer and since cancer is frequently associated with chronic inflammatory conditions, experience has taught that biopsy is our only means of making differential diagnoses in many instances. In practice we have adopted the following rules: 1. Every chronic sore or lump recently acquired which does not disappear or become smaller or show signs of disappearance after two or three weeks of local noncorrosive treatment, rest, local antiseptic and general hygienic care should be subjected to biopsy. It should be excised if possible rather than incised. 2. The removal of tissue for biopsy should not be done unless the one who does it is capable of performing the radical operation in case malignancy is found or unless he is in close immediate proximity to some one capable of completing the operation. 3. The biopsy should not be performed, as a rule, on small doubtful lesions located near epiphyseal lines in children. There are, perhaps, rare exceptions to this rule. 4. Biopsy should not be undertaken if the immediate and ultimate operative risks are greater than the possibility of cancer. 5. Tissue may be removed by incision of the sore or lump if this is large and thought to be a hopeless condition with only a small chance of its not being malignant. Immediate radical operation should follow the diagnosis if past experience shows that radical operation will prolong useful life or make even a short life free from lingering suffering; otherwise it is unnecessary. 6. Biopsy is often dependent on surgical exploration of body cavities in which some unrecognizable but incapacitating pathologic condition is known to exist. Differential clinical diagnosis in these systems is becoming more difficult; and experience with surgical exploration shows that many small cancers are being found. In the hands of well trained operators, exploratory risks are relatively small. The conservative surgeon is apt to refrain from exploration unless the patient is at least partially incapacitated or unless roentgenologic studies show a definite lesion in one of the systems or unless there are no roentgenologic signs and the patient's incapacity is increasing despite ordinary nonsurgical treatment.

DR. MAX CUTLER, Chicago: It has been said that when a patient consults his physician for cancer, the first move on the part of the physician determines the patient's fate. I subscribe to that and therefore believe that the question of biopsy occupies a predominant place in the entire scheme of cancer diagnosis and treatment. It is for that reason that I particularly welcome the detailed and elaborate preparation and thought that Dr. McGraw and Dr. Hartman gave to this subject. The presentation of this subject has been so comprehensive that it is exceedingly difficult to add anything to it. I would emphasize several practical points in relation to biopsy. When the lesion

is very small (0.5 or 1 cm. in diameter) the question arises as to whether it may not be best to remove the entire lesion rather than incise it. Under this circumstance the diagnostic and therapeutic measures are combined in one procedure. When the lesion is very small clinically and one has observed a sufficient number of them, one can often predict with considerable accuracy that microscopically there will be found a so-called borderline structure. Those who possess sufficient clinical experience and adequate familiarity with the pathology of tumors may treat such a lesion with biopsy if irradiation is to be used. That, I think, represents one possible exception to the general rule of performing biopsies. Thus the possible danger of biopsy may be avoided. When a breast tumor is large, the error is frequently made of performing an inadequate local excision of the tumor under the false impression that the mass is being excised widely. I should like to ask the authors whether they do not think that under those circumstances a very careful incision into the tumor, as Dr. Halstead formerly practiced, phenolizing the wound and changing the instruments, is not safer than the unsuccessful attempt to remove a large tumor widely for diagnosis. Finally, there is the question of exploratory biopsy, if one may call it that. A patient I saw had a large tumor of the thigh. The clinical impression was that the lesion was a fibrosarcoma. I hesitated whether to incise over that region because of the possibility of disturbing the capsule. I decided to perform a biopsy, with the result that when the fascia was incised it proved to be a deep-seated lipoma. Thus the true diagnosis is sometimes established by gross examination after exploratory incision.

THE AUTOPSY PROBLEM

ITS SOLUTION IN SMALLER COMMUNITIES

GEORGE W. COVEY, M.D.
LINCOLN, NEB.

Medical schools of the better class are usually, though not invariably, located in large communities and here the study of medicine tends to be centered. The examination of the dead is an important part of this study; hence one finds the autopsy work largely concentrated in these centers. Conversely, most of the smaller communities have no medical schools nor any direct connection with them. Furthermore, the patients are for the most part private, pay, patients; the family doctor is more or less intimate with the members of his community; he is not stimulated by a great teaching institution and the research spirit it engenders; he may even shrink from exposing the mistakes which he and all of us make. These things tend to make the autopsy the unusual rather than the routine precedure in these communities.

Even the large standardized hospital frequently has difficulty in obtaining permission for the postmortem examination of the required 15 per cent of its deaths and many of them are able to do so only because of the constant pressure on them by the American Medical Association and the threat of losing the name of "class A hospital."

In smaller hospitals, in smaller communities without the proper support of their staffs and often without or with only a part time and perhaps insufficiently trained pathologist, the problem is still greater. The need of educating the profession to want and demand autopsies and of educating the public to understand the benefits to be derived from this service is the greater, the smaller the community.

Davidsohn [1] has recently pointed out some significant facts in regard to the number of autopsies performed: that the number has been markedly increased in a certain class of hospitals apparently as a result of the drive for standardization by the American Medical Association; that regardless of this increase probably less than 2 per cent of all dead are examined post mortem; that therefore 98 per cent of vital statistics are totally or highly unreliable.

He expresses the opinion that the movement is doomed to failure or a very mediocre success as long as the whole load is shouldered by the medical profession and believes that real success is dependent on making the public view this work as a public health problem. This, of course, means laws compelling submission to autopsy the same as they now do to quarantine and other preventive measures in public health. He further points out the necessity of education beginning in the ranks of the medical profession.

With these facts in mind I am going to describe the methods used in Lincoln, Neb., and set forth the results obtained. I hope these methods and results may encourage other groups of physicians to greater effort in obtaining autopsies and perhaps suggest a plan whereby this larger number may be done with the least cost and the greatest benefit to the physician, the hospital and the public we serve.

Our problems in Lincoln were much the same as in smaller cities with no medical school connections. For years there was only an occasional postmortem examination. These were done by individuals relatively untrained in pathology. There was inadequate examination of the bodies and very poor and incomplete histologic study. The information obtained was seldom correlated with the clinical aspects of the case and, if so, it was not a staff function in our hospitals.

With the addition of new hospitals and the determined efforts at standardization, part time pathologists were added to the staffs and conditions improved somewhat. This improvement was, however, largely in the number of autopsies performed. Standard methods of performing the examinations, adequate records, thorough histologic examinations of the tissues, preservation of museum specimens and, perhaps as important as any or all of these, the correlation of clinical and pathologic observations as a staff function, were not carried out or were done very poorly.

Under these conditions, not only were relatives of the deceased difficult to convince of the need, but the majority of the physicians were only tolerant or totally uninterested in obtaining autopsy permission.

Another very important factor was the mortician. With varied personnel performing autopsies, using a medley of methods, and often scornful of the rights of the embalmer, there was constant discord. It came to be almost axiomatic that unless permission was obtained and an autopsy started before the family and mortician could consult about the matter, there could be no autopsy.

Realizing these facts, the three Lincoln hospitals, Saint Elizabeth's, Bryan Memorial and the Lincoln General, united in a definite plan as follows: Each hospital contributed the sum of $50 a month to a common fund. With this fund a central laboratory, known as the Hospital Laboratory, was set up and maintained in the Lancaster County Medical Society quarters in conjunction with a museum and medical library. A full time technician was employed with the addition of a part time stenographer.

The technician's duties have included the routine care and preparation of tissue for microscopic study, taking

1. Davidsohn, Israel: The Autopsy: An Outline of the Problem, Am. J. Clin. Path. 3:199 (May) 1933.

of notes as dictated at the autopsy, a part of the other stenographic work, the filing and indexing of museum materials, and the preservation of museum specimens, though further work on these, such as mounting, is done by others.

Autopsy teams consisting of the autopsy surgeon and an assistant were gradually developed. At first there was one so-called team. In time the assistant became a number one man and another assistant was added for each autopsy surgeon until, at the end of nearly five years, seven such teams are carrying on this work. Interns from the hospitals are also used as assistants as often as possible. I think that the criticism now being made that these are relatively untrained pathologists is a point well taken. However, full time pathologists were not available nor could they be paid. All the men who have entered this work were previously trained in some degree, were highly interested in this kind of work and, of still greater significance, were willing to follow an established routine and study the job. They have all worked without other remuneration than the knowledge to be obtained and the expression of their loyalty to their respective institutions.

These autopsy teams have constantly worked toward standard and uniform methods of doing and recording the results of the examinations. The records are all read and corrected to conform to the adopted standard by the one who has charge of this work. After correction three copies are typed, one of which is filed in the museum, another returned to the hospital and the third given to the attending physician. The work is not limited to the hospitals but any physician in the Lancaster County Medical Society may ask these teams to do his autopsies. It is interesting in this connection that approximately one third of the autopsies done by this setup have been outside cases; that is, cases not having been in one of the hospitals.

The examination of the microscopic sections has been done largely by one man. During the last year, however, two other men have gradually taken over a part of this work, so that in the coming year it will be about equally divided among the three. All sections are filed in the museum and indexed. A system of cross indexing of tissues has not been carried out because of lack of help and funds, though this will be done in time.

I want to return at this point to the situation regarding our relations with the morticians. We gradually made friends with them by making concessions. One by one they were convinced that we desired to work with them rather than against them and that to this end we would make certain concessions if they would. We agreed that the undertaker should inject the circulation before the autopsy, and in return he abstained from using a trocar in the cavities and the heart. In addition, most of them tried various embalming fluids to find the one that left the tissues most nearly natural in color and consistency. There are embalming fluids that cause practically no change in these characteristics and that do not damage the tissues from the standpoint of histology. They are no more difficult to use but are somewhat more expensive.

Furthermore, we have tried always to avoid so far as possible any unnecessary mutilation or the production of marks that cannot be covered in preparing the corpse for the inspection of friends and relatives. As a result of these things the morticians are now of the greatest help to us. They often obtain autopsy permissions that we have been unable to get; in fact, they have obtained permission in cases in which no permission has been asked.

The depression has caused us some trouble and a good deal of anxiety. In April, 1932, Saint Elizabeth's Hospital had to withdraw its support and we were soon informed that the other two would do likewise, though the Bryan Memorial continued until June 1 and the Lincoln General until Sept. 1, 1932. In order to avoid losing the results so far obtained, a number of physicians immediately agreed to donate from their private funds enough money to maintain the laboratory and pay the technician half time, and the laboratory proposed to the hospitals that we continue to do their work just as we had, so far as possible, until such time as they could again contribute to its support. This was accepted by all but one hospital. This one has carried on its own work since April 27, 1932. With the others there has been no break in continuity. I am detailing this because of its effect on the statistics about to be given.

During the four years and five months from Feb. 1, 1929, to May 31, 1933, this central laboratory has performed 599 autopsies. The one hospital that preferred to carry on independently for the present has performed an additional 58 from April 27, 1932, to May 31, 1933. This is a total of 657. During this period there were 3,971 deaths in the city of Lincoln. Therefore, autopsies were done in 15.5 per cent of all these deaths.

Of the 657 autopsies performed, 480 were from the three hospitals. During this period 1,438 patients died in these hospitals. Therefore, autopsies were done in 33.4 per cent of these deaths. The proportion of autopsies at each of the hospitals for the whole period is as follows: at St. Elizabeth's, 28.1 per cent; at the Lincoln General, 30.7 per cent, and at the Bryan Memorial, 49.1 per cent. The proportion of autopsies on all other deaths in Lincoln for this period is 7 per cent.

In addition to the data accumulated in this manner and filed and indexed for the use of any member of the county medical society, much of it is studied very thoroughly and used in clinicopathologic staff conferences at the various hospitals. For example, during 1932-1933, sixteen such conferences were held at which thirty-two cases were presented in detail both clinically and from the standpoint of pathology. These conferences are among the best attended medical meetings we have, bearing evidence of the present interest of the doctors in our community in the autopsy as a teaching possibility. Further evidences of the interest they have developed as the result of this scheme of carrying on the work are the effort put forth to obtain autopsy permission and the generosity of the physicians as a whole in helping sustain the laboratory financially during the depression.

SUMMARY

Lincoln, a moderate sized city, without a medical school, has by the method outlined developed such interest in autopsies that over a period of fifty-three months we have done 657 autopsies with complete records, examined and recorded the histopathologic observations, and properly correlated the clinical and pathologic observations in a large number of them as a staff function of our hospitals. This constitutes an autopsy percentage of 15.5 on all deaths in the city for this period, which is over eight times the general average in the United States, and 33.4 per cent for all deaths in the three hospitals for the same period, or

well over twice the percentage required for standardization.

CONCLUSIONS

1. There is great need of increasing the number of well done and well studied autopsies, especially in the smaller communities.

2. To do this the medical profession must be made autopsy conscious and the autopsy must be made interesting and profitable to the physician.

3. The cooperation of the mortician is necessary, it can be had and it is invaluable.

4. A plan such as the one adopted in Lincoln is workable and could be adapted to almost any community.

Sharp Building.

CANCER-LIKE LESIONS OF THE UTERINE CERVIX

RICHARD W. TeLINDE, M.D.
BALTIMORE

Every year in the Gynecological Pathology Laboratory of the Johns Hopkins Hospital a few histologic lesions of the cervix are encountered which in certain respects suggest carcinoma and which at times evoke differences of opinion among the staff members as to their benign or malignant nature. Judging from the interesting "suspicious" sections sent to the laboratory from other clinics, it is obvious that others are encountering the same difficulties. The easiest course to follow in a case of uncertain histologic diagnosis is to appease one's scientific conscience with the thought

Fig. 1.—Curettings showing plaques of stratified squamous epithelium obtained from the cervix. This was erroneously considered carcinoma.

that if the lesion is not cancerous it may be "precancerous" and should therefore be removed. As a result of this method of reasoning I have examined several uteri that had been removed unnecessarily and am convinced that hundreds are sacrificed annually which might be saved if pathologists generally were more familiar with the finer nonmalignant changes in the cervix as well as the earliest histologic signs of malignancy. When one appreciates the fact that panhysterectomy and the bilateral salpingo-oophorectomy which usually accompanies it, when done for malignancy, is

Fig. 2.—Portion of cervical polyp showing marked epidermization. The epithelial strands lie deep within the stroma of the polyp, the surface of which is covered with columnar and atypical squamous epithelium.

an operation which carries with it a definite mortality and morbidity, it is apparent that womankind is suffering because of the profession's incomplete knowledge. The same may be said of the unnecessary use of radium, which at times carries with it a morbidity which should not be lost sight of when advising its use.

At this point it may be advisable to scrutinize the meaning of the much abused word "precancerous." On reviewing the literature, one is struck by the loose manner in which this word is used. Gynecologists refer to lesions as "precancerous" when they have no further evidence of their precancerous nature than the fact that they somewhat resemble cancer histologically. How, then, should the term "precancerous" be employed? If a certain lesion invariably becomes cancerous, if unmolested, it must be considered as representing an early stage of actual cancer, even though histologically the significant cell changes in that stage may as yet be unrecognizable. For a lesion to be considered "precancerous" it must be established that the incidence of carcinoma developing in such cases is greater than that of carcinoma in persons free from such a lesion. As an example of a lesion now definitely recognized as precancerous one might cite leukoplakia of the vulva. Taussig showed that carcinoma of the vulva was preceded by leukoplakia in over 50 per cent of the cases in his series. This clinical association of the disease is further substantiated by Smith and Graves, who found on examination of twenty-one specimens of vulval carcinoma that sixteen also showed leukoplakic

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 16, 1933.

changes. To a lesser degree, cervical lacerations with the resultant chronic cervicitis may, in a sense, be considered precancerous, as is shown by the high percentage of parous women among victims of this disease (Graves, 90 per cent; Cullen,[1] 98 per cent; Sampson, 97 per cent). There is also clinical evidence to show that eradication of cervical infections decreases the

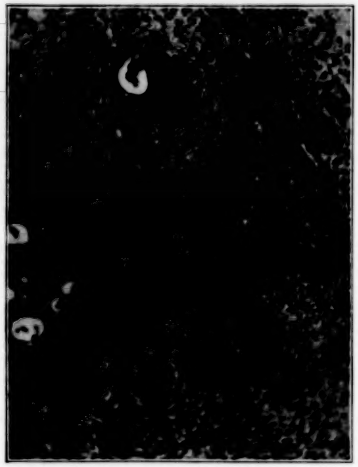


Fig. 3.—High-power magnification of deep-lying strands of epithelium. The cells are uniform in type except as they become flatter and concentrically arranged near the center of each strand, forming pearl-like patterns. No mitoses are present.

incidence of carcinoma. For example, Smith and Pemberton [2] state that in their series of 1,408 cervical cauterizations none of the patients were known to have developed cervical cancer. It is thus obvious that there is clinical evidence that inflammatory lesions of the cervix predispose that organ slightly to carcinoma, and in that sense they may be considered precancerous. It is, however, one thing to recognize this clinical fact and quite another to establish a histogenetic relation between certain inflammatory lesions of the cervix and carcinoma.

A review of the literature reveals many reports of cancer-like lesions of the cervix. Among others, the report of Stone [3] is noteworthy. This shows excellent photomicrographs of lesions designated as "precancerous." On studying the text, however, one finds that no evidence is presented to prove that any of these lesions subsequently became carcinoma. Novak [4] has called attention to cancer-like lesions which he considers benign. He states, however: "As we have not as yet made a follow-up analysis of our cases from this standpoint, I can for the present give only impressions rather than actual facts."

1. Cullen, T. S.: Cancer of the Uterus, New York, D. Appleton & Co., 1900; Early Squamous Cell Carcinoma of Cervix, Surg., Gynec. & Obst. **33**: 137 (Aug.) 1921.
2. Pemberton, F. A., and Smith, G. V.: Am J. Obst. & Gynec. **17**: 165 (Feb.) 1929.
3. Stone, W. S.: Tr. Am. Gynec. Soc. **41**: 470, 1916.
4. Novak, Emil: Pathologic Diagnosis of Early Cervical and Corporeal Cancer, Am. J. Obst. & Gynec. **18**: 449 (Oct.) 1929.

As has been repeatedly emphasized by Meyer,[5] the question of whether a lesion is malignant or benign can be determined only by the patient's subsequent clinical course. There can be no controversy over this point of view. In the present series my associates and I have followed the cases clinically and feel that the results are of value in determining whether or not any of these cancer-like lesions subsequently developed into actual cancer and whether the term precancerous may properly be applied to them. Ewing has said, "It is not true that a pathological condition must be either cancer or not cancer. It may be neither one nor the other. It may be in the process of becoming cancer." One must admit the truth of this statement on theoretical grounds, but, as practical gynecologists, we wish to know whether or not a histologic picture of the cervix can be recognized which represents a transition from the nonmalignant to the malignant or whether a lesion exists which under certain conditions may become malignant. The importance of biopsy in suspicious lesions of the cervix has been emphasized by Meyer, Kaufmann,[6] Hirshberg, Cullen, Novak and others. Hinselman, by the use of his colposcope, has enlarged the field of biopsy by uncovering many leukoplakic lesions suggesting malignancy which would escape the unaided eye. In view of this increasing trend to employ biopsy in doubtful lesions, the gynecologic pathologist is called on more and more for a differential diagnosis in the very early pathologic changes. To do this, he

Fig. 4.—Epidermization of surface epithelium penetrating deeply into the stroma of the cervix.

must be familiar with all lesions of the cervix, inflammatory, cancerous, cancer-like, and precancerous, if such a lesion as the last named is recognizable.

The material on which this study is based is derived from histologic lesions encountered in the routine

5. Meyer, Robert: Zentralbl. f. Gynäk. **47**: 946 (June 16) 1923; Arch. f. Gynäk. **115**: 394 (Nov.) 1922; **91**: 579, 1910; **91**: 658, 1910.
6. Meyer, Robert, and Kaufmann, C.: Zentralbl. f. Gynäk. **50**: 20 (Jan. 2) 1926.

examination of cervical tissue coming to the laboratory. The microscopically suspicious lesions were found in twelve instances in cervical polyps which were simply twisted off, no attempt being made to remove the tissue radically about the base of the polyp. The lesions were accidentally found in tissue removed at trachelorrhaphy in three and at amputation of the cervix in one case.

Fig. 5.—Marked epidermization of surface epithelium in cervical canal which invades the stroma deeply. The individual cells show no evidence of malignancy.

Results of Operations

Case	Operation	Result	Time Elapsing
1	Removal of cervical polyp	Well	2 yrs.
2	Panhysterectomy; resection of cyst of right ovary; appendectomy	Well	1 yr. 6 mos.
3	Dilation and curettage; removal of cervical polyp	Died of hemiplegia	3 yrs.
4	Vaginal panhysterectomy	Well	2 yrs. 6 mos.
5	Removal of cervical polyp	Well	3 yrs.
6	Trachelorrhaphy; perineal repair	Well	4 yrs.
7	Removal of cervical polyp	Well	2 yrs.
8	Removal of cervical polyp	Well	4 yrs. 3 mos.
9	Removal of cervical polyp	Well	1 yr. 6 mos.
10	Panhysterectomy; double salpingo-oophorectomy	Well	4 yrs.
11	Removal of cervical polyp	Well	3 yrs.
12	Removal of cervical polyp	Well	1 yr.
13	Vaginal panhysterectomy; posterior colporrhaphy	Well	1 yr. 9 mos.
14	Biopsy (cervix)	Well	1 yr.
15	Trachelorrhaphy; dilation and curettage	Well	1 yr.
16	Panhysterectomy; left salpingo-oophorectomy	Well	3 yrs.
17	Trachelorrhaphy; dilation and curettage; appendectomy	Well	3 yrs. 8 mos.
18	Removal of cervical polyp; supravaginal hysterectomy	Well	10 yrs.
19	Removal of cervical polyp	Well	4 yrs.
20	Amputation of cervix; repair of cystocele	Well	4 yrs. 6 mos.
21	Removal of cervical polyp and ovarian cyst	Well	8 yrs. 9 mos.
22	Removal of cervical polyp	Died; embolism following broken hip	7 yrs.
23	Dilation and curettage	Well	2 yrs.
24	Panhysterectomy		

In one instance the tissue was removed for biopsy of a suspicious cervical lesion and in one instance by curettage. In six cases the routine examination of cervices removed by panhysterectomy showed cancer-like lesions. From all such cases several blocks were cut and several sections studied from each block in an attempt to find unmistakable cancer in the same cervix, with the idea, particularly, of tracing continuity between the cancer-like lesions and true cancer. In none of the instances was definite microscopic cancer encountered. In this way we have attempted not only to check up our histologic diagnoses but also to learn the true significance of questionable cervical lesions. The patients were followed for from one to ten years. The accompanying table shows the results of these investigations.

It is obvious from the examination of the table that there is no evidence that any of these patients subsequently developed carcinoma of the cervix. In the cases in which polyps were removed or in which tissue was removed for biopsy or by trachelorrhaphy, the theoretical objection might be raised that these simple procedures removed the "precancerous" tissue and hence one would not expect a subsequent development of carcinoma. That this objection is not valid, however, is shown by the fact that these changes, when present in the cervices removed by panhysterectomy, were not usually localized at one point but could often be demonstrated at several points in the same cervix. It is therefore not likely that the simple procedure of biopsy, trachelorrhaphy or removal of a cervical polyp would have taken away all of the tissue showing this change. In spite of this, none of these patients developed cervical cancer. Two died three and seven years, respectively, after the original operative procedure, but neither had shown symptoms of carcinoma. In the cases in which panhysterectomy was done, careful study of many sections failed to show undoubted carcinoma at any portion of the cervix. In specimen 23, sent to us from another laboratory, an erroneous diagnosis of carcinoma was made from the microscopic picture shown in figure 1. The plaques of stratified squamous epithelium, obviously removed from the cervix in performing the curettage, were taken as indicative of

Fig. 6.—Isolated plaques of squamous epithelium buried deeply beneath the surface, but high-power magnification showing the individual cells to appear benign in character. There is marked round-cell infiltration.

malignancy, and a panhysterectomy was performed. Careful subsequent examination of the cervix failed to show evidences of carcinoma. The examination of the endometrium in the original curetting showed marked benign endometrial hyperplasia, which undoubtedly explained the symptom of bleeding.

I shall consider in some detail the histologic pictures presented by the cases followed in this series. The car-

cinoma-like picture may suggest epidermoid carcinoma or adenocarcinoma. The first variety is more frequently encountered. Figure 2 shows, under low magnification, a portion of a cervical polyp in which epithelium of the squamous type has gone far into the stroma. A

Fig. 7.—Glandular lumen almost obliterated by the proliferation of epithelial cells of the squamous type.

large portion of the surface of this polyp is covered with columnar cervical epithelium with scattered areas of so-called epidermization; that is, a replacement of cylindric epithelium by the squamous type. In places,

Fig. 8.—Marked proliferation of squamous epithelium in the cervical glands, pushing before it the columnar layer of cells, which is preserved intact.

a gradual transition of the columnar into the squamous type seems to be present. Under this magnification the picture is strongly suggestive of malignancy. Solid strands of cells lie deep in the stroma and in places these are apparently isolated from the surface epithelium. The general pattern of the growth is extremely irregular, resembles no normal pattern, and suggests malignancy. Careful examination under higher magnification, however, is necessary to a final decision on this point. Figure 3 shows this deep-lying epithelium under sufficient magnification to observe the character of the individual cells. These are seen to be relatively uniform as to size, shape and staining qualities, except for a tendency to hornification toward the center of the individual strands forming pearl-like structures. A typical basal layer of cells, more or less columnar in type, such as is seen in normal cervical mucosa, is for the most part lacking. Scattered through the epithelium are several pyknotic nuclei, but large hyperchromatic nuclei as well as mitotic figures are not found. Hence under magnification sufficient to study the character of the individual cell one finds it difficult to consider this lesion malignant in spite of the first impression gained by inspection under low magnification. Its benign nature is confirmed by the fact that the patient has remained well for two years after the simple twisting off of the polyp.

Lesser degrees of similar benign invasion of the cervical stroma can be seen in figures 4 and 5. In figure 6, several apparently isolated strands of squamous epithelium are seen lying deep in the cervical stroma, but

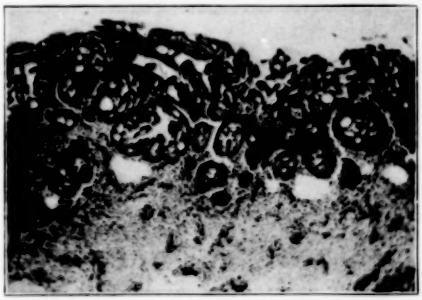


Fig. 9.—The adenomatous pattern formed by "squamous metaplasia" of cells lining the glands. This pattern is sometimes erroneously considered adenocarcinoma.

under higher magnification these, too, show no cellular changes suggesting malignancy. On serial section several of these "isolated" epithelial areas can be seen to be continuous with the surface epithelium. The failure to establish continuity, however, by no means indicates malignancy, for inflammation and the resultant fibrosis may isolate strands of benign epithelium from the parent surface layer. Figure 6 shows a marked infiltration with round cells, indicating inflammation, the invariable accompaniment of the irregular epithelial proliferation. The downgrowth of squamous epithelium frequently follows a glandular lumen and many fill the entire passage with a solid cord of epithelium. Figure 7 shows such a process in which the lumen is partially obliterated. Often this epithelial proliferation takes place beneath the columnar epithelium of the gland, preserving the latter as the most superficial layer. This is shown particularly well in figure 8.

Another histologic lesion giving rise to confusion is an adenomatous picture somewhat suggestive of adenocarcinoma. Figure 9 shows such an instance under low magnification. Often this picture is seen deep

beneath the surface epithelium, which further suggests malignancy. Under higher magnification the process may be recognized as simply another form of essentially the same process of the epidermization described. The normal columnar epithelium lining cervical glands has been replaced by epithelium resembling the squamous type. The glandlike spaces of this adenomatous picture are in part actually gland lumens of cervical glands partially obliterated by the growth of epithelium. Other smaller lumens are simply the result of cellular degeneration. The lumens are often filled with cellular debris. Figure 10 shows such an adenomatous picture under higher magnification. Careful examination of the individual cells fails to reveal hyperchromatic nuclei or mitoses.

In the vast majority of cases these "cancer-like" benign histologic lesions are readily differentiated from early carcinoma, provided the pathologist is cognizant of their existence. In some, however, in which this epidermization is extreme, difficulty may be encountered in arriving at a correct diagnosis. Early carcinoma may often travel into the depths of the cervix by way of glands in much the same way as benign squamous epithelium. Figure 11 shows such an invasion in a very early carcinoma accidentally discovered in a routine examination of a cervix removed because of lacerations and infection. At times a suspicion of malignancy will be aroused by the manner of invasion, which shows actual destruction of the columnar epithelium of the gland instead of a simple proliferation beneath retained columnar epithelium, so frequently present in benign epidermization. When invasion of malignant epithelium is marked there is no difficulty in recognizing it as cancerous, but in the earliest cases there may be nothing particularly characteristic about the malignant invasion to contrast it with a benign downgrowth of epithelium. So in the doubtful cases the decision frequently rests on a careful examination of the individual cells under high magnification. The diagnosis of malignancy in the case shown in figure 11 must be made entirely on this basis.

Deviation from the normal as shown by irregularities in size, shape and staining qualities are all points in favor of malignancy. A retention of the normal differentiation of cells in squamous epithelium into the basal, transitional and spinal layers is a point against

Fig. 10.—Higher magnification of adenomatous pattern showing proliferation of lining epithelium to two or three layers deep. In places, solid strands of epithelium of the squamous type have been formed.

Fig. 11.—Section from a very early carcinoma accidentally discovered in a cervix removed for chronic infection with fibroids. The pattern of the invasion differs in no way from that of the benign conditions pictured here. The diagnosis of malignancy is made entirely on the character of the individual cell changes.

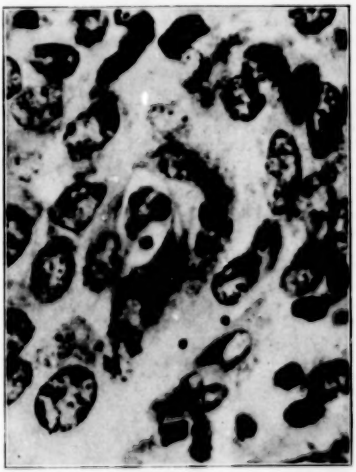


Fig. 12.—High-power magnification of small area from figure 10. The mitotic figures and hyperchromatic nuclei definitely establish the diagnosis of malignancy.

malignancy. Its absence, however, does not necessarily indicate malignancy, for in the squamous epithelium formed by the process of epidermization this differentiation is often wanting. Hyperchromatic nuclei are suggestive of malignancy, and mitotic figures in the cervical epithelium are of great significance. The finding of both establishes a diagnosis of malignancy. Figure 12, which represents a small area of figure 11 under higher magnification, shows both mitotic figures

Fig. 13.—The transition between columnar and squamous epithelium on the surface of an infected submucous fibroid which had its origin high up in the uterine cavity.

and hyperchromatism. Such a picture would signify malignancy even if found in the surface epithelium entirely without evidence of invasion.

The presence of mitoses in various tissues of the body is of variable significance as regards malignancy. For example, mitoses are frequently seen in the epithelium and stroma of the endometrium in the postmenstrual stage. They are also encountered in benign hyperplasia of the endometrium. In none of the lesions studied in this series were mitoses found, in spite of a careful search. In discussing Martzloff's[7] reported case of early carcinoma of the cervix, Cullen says: "We fully realize that nuclear figures do occur in the squamous epithelium, otherwise there could be no reparation when defects occur. But they are so uncommon that we have not encountered them in our routine work except where malignancy exists. We have also failed to note them in cylindrical epithelium of the cervix." H. R. Schmidt,[8] however, has definitely demonstrated mitotic figures in regenerating cervical epithelium. He destroyed the cervical epithelium by cauterization, amputated the cervices six, eight, ten and twelve days afterward, and made microscopic studies of the tissue thus removed. Mitoses were frequent in the regenerating epithelium. Notwithstanding this experimental fact, experience has taught that they are extremely rare except in malignant cervical epithelium. A diagnosis of malignancy cannot be made on finding a single mitotic figure, but the identification of even one should call for a careful search, which will usually reveal several, as well as other changes indicating malignancy.[9]

7. Martzloff, K. H.: Bull. Johns Hopkins Hosp. **33**: 221 (June) 1922; **40**: 160 (March) 1927.

8. Schmidt, H. R.: Ztschr. f. Geburtsh. u. Gynäk. **90**: 48, 1926.

9. Since the completion of this study I have examined a biopsy section of a cervix which resembled the lesions of this series except that an occasional mitotic figure was present. The cells otherwise showed no changes suggestive of malignancy. The case will be followed with much interest, but as no appreciable time has elapsed since the biopsy the exact status of this case cannot be evaluated.

As to the etiology of these "carcinoma-like" microscopic pictures, there can be little doubt that inflammation is the essential factor in their production. We have never seen such a microscopic picture except in the presence of demonstrable infection. The same process of epidermization may occur in the mucosa of the body of the uterus, but always in the presence of infection. Figure 13 shows such a process in the endometrial surface covering an infected submucous fibroid. Rarely, the entire uterine cavity may become lined with squamous epithelium in the presence of severe chronic infection, particularly in elderly women. Figure 14 is a section of endometrium showing such extreme epidermization high up in the uterine cavity. The squamous epithelium may be of unusual thickness and penetrate deeply into the endometrial stroma. Cross sections of the penetrating processes may show pearl-like structures.

Concerning the origin of this squamous epithelium which replaces the columnar either in the cervix or in the endometrium, three possibilities may be considered:

1. The growth by direct extension of squamous epithelium from its normal habitat, replacing the columnar epithelium of the cervix or endometrium following the destruction of the latter by inflammation.

2. Transformation or "metaplasia" of adult columnar epithelium into epithelium of the squamous type.

3. The growth of squamous epithelium from embryonal rests of epithelial cells that have retained a potential power to develop into epithelium of the squamous type under the proper stimulus.

As in many pathologic lesions, a better concept of the origin may be obtained from early lesions rather than from those that are fully developed. Figure 15 shows small early lesions in which squamous-like patches are developing in the lumen of a cervical gland. The finding of such isolated patches of squamous epi-

Fig. 14.—Surface of endometrium in which the columnar epithelium is entirely replaced by heavy stratified squamous epithelium. This epithelium, in the presence of marked endometritis, penetrates deeply into the endometrial stroma. The individual epithelial cells show no changes suggesting malignancy.

thelium apparently blending with the columnar type suggests a direct metaplasia of one type into the other; but Meyer would explain such a picture on the basis of the development of the squamous epithelium from an epithelial rest retaining the potential capability of developing into epithelium of the squamous type on the incitation of some stimulus such as inflammation.

These more or less theoretical considerations as to the origin of these microscopic pictures are interesting but possibly cannot be definitely proved. In mentioning them it is not my purpose to detract from the main clinicopathologic theme of this paper. It has been my purpose to call the attention of pathologists and surgeons to these histologic pictures which are at times confused with carcinoma and to remind them that, although the pictures are cancer-like, there is no real evidence that they are precancerous. It has further been my purpose to show that there is no justification for radical surgery solely on the basis of these microscopic lesions. When doubt exists after examination of biopsy specimens by competent pathologists, such

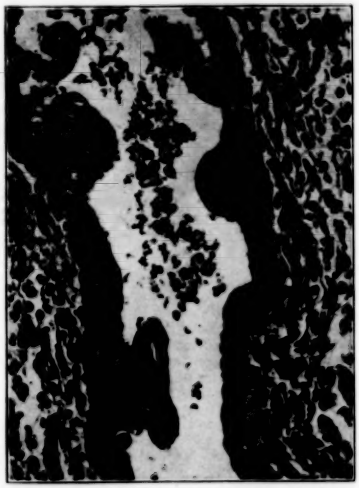


Fig. 15.—Glandular lumen showing three areas in which small plaques of squamous epithelium blend with the normal columnar epithelium lining of the gland. Areas such as this suggest a metaplasia of the columnar to the squamous type.

patients should be kept under the closest observation and a second biopsy instituted if necessary. It is only by carefully following such patients that the true significance of questionable lesions of the uterine cervix can eventually be learned. Further, it must be admitted that with present knowledge there is as yet no microscopic picture from the cervix which can justifiably be interpreted as a transition between the benign and the malignant.

1107 St. Paul Street.

ABSTRACT OF DISCUSSION

DR. GEORGE H. GARDNER, Chicago: Dr. TeLinde has rendered a real service by directing attention to the histologic picture of cancer-like lesions of the cervix. He has presented clinical and laboratory proof that such conditions are benign, that they are not precancerous, and that patients harboring such lesions should not be subjected to radical surgical procedures or to heroic doses of radium. I wish that Dr. TeLinde had told more about the complaints which his patients presented, of the observations and of the gross appearance of the lesions in the operating room. It would be interesting to know the results of the Schiller test and the colposcopic examination in these patients. Such additions to the microscopic data would have made the picture complete. I hope that he will report them in a subsequent paper. From the standpoint of practical gynecology, a given lesion of the cervix must be considered either benign or malignant. It is not yet possible to recognize those features which denote that a benign lesion is passing over into a malignant cervical growth. Such a metamorphosis cannot be identified either grossly or in histologic preparations. After careful consideration of the patient's history and thorough, painstaking examination of the cervix under ideal conditions of relaxation, exposure and illumination one can almost invariably make a clinical diagnosis of cancer. The pathologist must be looked on as an invaluable consultant, not as a prophet. When he is confronted with a difficult microscopic picture, such as Dr. TeLinde has just shown, he should not be required to give an unqualified opinion based solely on the information which he can derive from one or two sections. The final diagnosis is more wisely made after a thorough review of all available information, history, physical examination and gross characteristics of the lesion, as well as its microscopic appearance. When competent gynecologic histopathologists disagree on the benignancy or the malignancy of a given section of the cervix, it can be concluded, with considerable assurance, that the growth is benign.

DR. RICHARD W. TELINDE, Baltimore: The reason the Schiller test and colposcopic examinations were not done in these cases was that the tissue in most of the cases was removed before colposcopic examinations and the Schiller test were in general use. At the present time careful histologic examinations together with follow-up studies should be done on a series of lesions found to be suggestive on colposcopic examination and with the Schiller test.

BENIGN LESIONS OF THE FEMALE BREAST SIMULATING CANCER

MAX CUTLER, M.D.
Director, Tumor Clinic, Michael Reese Hospital
CHICAGO

Authorities on the subject of neoplasms of the breast are agreed that radical excision constitutes the accepted method for the treatment of all tumors of the breast which exhibit the clinical signs of cancer. This attitude has brought into prominence a group of innocent lesions of the breast accompanied by such classic signs of cancer as to lead to their radical removal under erroneous diagnoses. As the education of the laity has progressed and patients consult their physicians more often soon after the first signs of disease, the task and responsibility of the physician have been greatly increased both in diagnosis and in treatment.

It is the purpose of this communication to describe several innocent states of the breast which simulate cancer and discuss the diagnosis and treatment of some borderline conditions the exact nature and future course of which it is becoming increasingly difficult to estimate as they are encountered in their earlier stages.

PLASMA CELL MASTITIS

The term "plasma cell mastitis" has been applied by Ewing to an acute and subacute inflammatory state of the breast in which a rich plasma cell exudate often forms a striking microscopic feature. Ewing[1] was the first to call attention to the gross and microscopic features of this condition in the laboratories of the Memorial Hospital. These laboratory observations

Read before the Section on Pathology and Physiology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

1. Ewing, cited by Adair, F. E.: Plasma Cell Mastitis—A Lesion Simulating Mammary Carcinoma, Arch. Surg. **26**: 735 (May) 1933.

were followed by clinical studies by Adair [2] and myself, and these observations have been recorded in the literature. In a careful analysis of ten cases observed in the Memorial Hospital, Adair has directed attention to the various phases of this disease.

I have reviewed the older literature and have failed to find reference to acute or subacute inflammation of the nonlactating breast with the exception of that complicating acute general infections such as typhoid fever and parotitis.

That the clinical features of this condition may have been noted previously is indicated by an isolated observation in which Courtin [3] in 1899 presented before the Bordeaux Medical and Surgical Society a case of subacute mastitis simulating a malignant tumor of the breast. The patient was 50 years of age, and the menopause had occurred four years previously. The tumor had been present three months and possessed many of the classic features of cancer. It was firm and fixed to the skin. The nipple was retracted, and the axillary lymphatic glands were enlarged. The tumor was, however, exquisitely tender, and the skin was reddened and warm. The lesion was treated by means of local applications. After four weeks there was no evidence of disease, the tumor having completely disappeared. In the discussion of this case, Coquet referred to a similar observation. Neither of these clinical observations is supported by microscopic evidence.

In 1932 Cohn and Bloodgood [4] reported a series of cases of nonsuppurative chronic lactation mastitis, some of recent origin, others appearing months or years after pregnancy. Microscopic study of the sections showed evidence of residual lactation in all the cases. I have recently observed a case of plasma cell mastitis in a woman, aged 40, in whom there had been no previous pregnancies.

CLINICAL FEATURES

A breast which is not the seat of lactation may become acutely inflamed, and in its earliest stages the condition gives rise to a clinical picture simulating inflammatory carcinoma. The disease begins suddenly and is ushered in with pain, diffuse tenderness and redness of the skin. The entire breast becomes swollen, and the axillary lymphatic glands are enlarged and tender. There is usually some rise in temperature, sometimes accompanied by a chill. A creamy discharge from the nipple is occasionally noted. The most important differential point from inflammatory carcinoma is the absence of a dermal and subdermal thickening representing invasion of these sites by tumor cells.

The acute symptoms soon begin to subside, and the process enters a subacute stage, during which period the symptoms and signs mentioned are present in a diminishing degree and begin to disappear. As the inflammatory signs disappear and the swelling of the breast diminishes, there remains a mass in the breast which often presents many or all the classic clinical signs of cancer. The mass is solid, firm and often adherent to the overlying skin, which is dimpled, and the nipple is sometimes retracted. These clinical signs, accompanied by enlarged axillary lymphatic glands, justify a diagnosis of carcinoma. Actually, until this syndrome became fully recognized, this error in clinical diagnosis occurred in every case that came to the attention of my associates and myself.

An interesting though confusing peculiarity of this disease is the slowness with which the tumor mass regresses. In several examples in which the patients were examined carefully at weekly intervals, it was discovered that a detectable regression could be determined only after intervals of from three to four weeks. The change, though definite, was so slow as to revive the suspicion that carcinoma was present. During this prolonged observation it is important to establish with certainty that the mass is diminishing in size, as this is the crucial sign which enables it to be differentiated from carcinoma in this stage of the disease. The following case, which I had an opportunity to observe closely from the onset of the disease, is a typical example of this condition:

REPORT OF CASE

The patient was a woman aged 50. The last pregnancy had occurred twelve years previously. The patient had sudden pain and tenderness accompanied by redness and swelling of the right breast. The temperature was 100.2 F. by mouth. The entire right breast was edematous and exquisitely tender. The overlying skin was red. In the central portion of the right breast was an indistinct, firm mass. The axillary lymphatic glands were enlarged and tender. As an abscess was suspected, an aspirating needle was inserted into the center of the mass, and several drops of purulent-looking material were withdrawn. On microscopic examination, this material showed leukocytes and epithelial debris. The signs of acute inflammation disappeared after one week. As the edema of the entire breast subsided the mass in the central portion of the gland became more discrete. It measured about 6 cm. in diameter. Examination at weekly intervals showed that the mass was diminishing in size. The regression was, however, so slow that eight weeks after the onset of the disease there still remained a mass 3 cm. in diameter. The consistency of this mass was as firm as that of carcinoma, and there was adherence of the overlying skin. Because of the presence of these signs and the failure of the mass to disappear after this long interval, it was deemed unsafe to withhold exploration. A wide local excision was performed, and microscopic examination revealed the typical morphologic appearance of plasma cell mastitis.

GROSS AND MICROSCOPIC FEATURES

Cross-section of a breast which is the seat of plasma cell mastitis shows numerous dilated ducts and minute cysts which, under pressure, exude a thick, creamy, puriform material. In some areas there may be soft, almost necrotic, grayish foci. The tissue often presents a peculiar, pink inflammatory appearance. Cicatricial areas and chalky points characteristic of carcinoma are absent. The process is diffuse, and no discrete tumor can be palpated except in the late stages of the disease when all acute and subacute changes have disappeared. Xanthomatoid foci varying from 1 to 3 mm. in width may project from the cut surface. Because of the extreme induration and resistance, the tissues resemble carcinoma, and a distinction between the two lesions by palpation alone is exceedingly difficult.

The essential microscopic changes consist of an active, acute and subacute exudative inflammation with numerous leukocytes, lymphocytes and plasma cells. The exudate is especially prominent about ducts and acini, where the cellular reaction may consist almost exclusively of plasma cells. Giant cells of a foreign body type are often present about these foci. These may be few in number, or they may form a striking part of the histologic structure. The dilated ducts are

2. Adair, F. E.: Gumma of the Breast: Its Differential Diagnosis from Cancer, Ann. Surg. **79**: 44, 1924; Plasma Cell Mastitis—A Lesion Simulating Mammary Carcinoma, Arch. Surg. **26**: 735 (May) 1933.

3. Courtin: Un cas de mammite subaigue simulant une tumeur maligne du sein, Bull. et mem. Soc. med. et chir. de Bordeaux, 1900, p. 292.

4. Cohn, L. C., and Bloodgood, J. C.: Chronic Lactation Mastitis, Suppurative and Non-Suppurative, Am. J. Cancer **16**: 487 (May) 1932.

filled with desquamated epithelial débris. In some areas the epithelial cells undergo an intense malignant looking hyperplasia, which, in the frozen section, may be difficult to distinguish from carcinoma, but which on paraffin section proves to be confined within normal boundaries of ducts and acini (fig. 1).

DIAGNOSIS

The most important diagnostic aid in differentiating plasma cell mastitis from carcinoma is the acute onset of the disease and its subsequent clinical course. During the initial stage the entire mammary gland is firm, indurated and diffusely tender. The skin is red and edematous, and the axillary lymphatic glands are enlarged, confluent and tender. There is moderate fever, and the patient presents the picture of an acute or subacute infection. From this state the clinical course is one of slow but continuous regression and not progression as invariably occurs in carcinoma. The disappearance of the acute and later the subacute inflammatory phases and the slow but definite regression of the tumor differentiate it from carcinoma. Thus it is important to emphasize that during the subacute or chronic stage a single examination leads invariably to an erroneous diagnosis, and it is only by a careful history of the onset and progress of the disease and by repeated periodic examination with actual measurements of the tumor that the true nature of the confusing and misleading cancer-like lesion can be established.

Plasma cell mastitis must be distinguished from (*a*) inflammatory carcinoma, (*b*) diffuse duct carcinoma and (*c*) traumatic mastitis.

In the first stages of plasma cell mastitis the clinical picture closely resembles inflammatory carcinoma. In inflammatory carcinoma, however, the invasion of the subdermal lymphatics by cancer cells gives rise to an irregular thickening of the skin which is not present in plasma cell mastitis.

Diffuse duct carcinoma may simulate plasma cell mastitis, especially in the presence of a superimposed inflammation. The sudden onset, acute inflammatory signs and symptoms and regression of the lesion are the distinguishing features of plasma cell mastitis. Duct carcinoma is slowly but steadily progressive.

The interpretation of the histologic structure associated with plasma cell mastitis may be confusing and difficult particularly if a diagnosis is attempted by means of the frozen section. The disorderly and atypical epithelium often gives the appearance of having invaded outside structures when actually it is confined within normal boundaries. Another source of confusion is that large edematous plasma cells poorly fixed in the frozen section may resemble superficially small anaplastic carcinoma cells. Careful microscopic examination of these areas with the high power lens of the microscope usually establishes the true nature of these cells.

PROGNOSIS

Plasma cell mastitis is a curious, unexplained inflammatory process, and tends to spontaneous regression and disappearance. I have observed a number of examples in which breasts presenting the aforementioned clinical features have returned to an apparently normal state. Courtin and Coquet reported similar observations in which local applications and rest were the only therapeutic measures. In most patients suffering from this condition the breasts have been removed under the clinical diagnosis of carcinoma, and the true nature of the disease has been discovered only after operation. There is no evidence that this lesion bears any relation to mammary cancer. The intense epithelial hyperplasia which accompanies the acute inflammatory stage has remained confined within the normal boundaries of ducts and acini in all examples which I have studied.

TREATMENT

If the patient is seen during the acute stage of the disease, local applications and rest are the logical methods to adopt while the lesion is watched carefully. If the course of the disease confirms the diagnosis, operation should be withheld as long as there is discernible clinical improvement. If, after a period of observation, the lesion remains stationary or shows signs of progression and the diagnosis becomes uncertain, an exploratory operation should be performed unless the presence of inflammatory carcinoma is suspected. Operation during the acute stage of the process is contraindicated in any event, and neither a local nor a radical procedure should be attempted at this period.

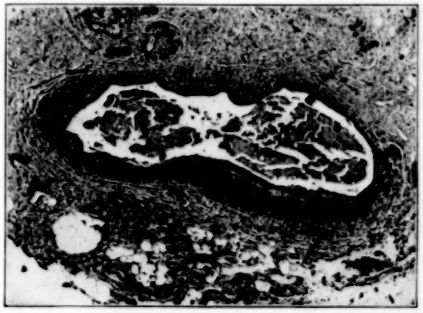


Fig. 1.—Photomicrograph showing cross-section of duct surrounded by a periductal inflammatory process consisting of lymphocytes, leukocytes and plasma cells. This inflammatory process occurred in a breast which exhibited all the classic clinical signs of cancer.

During the later stages, when all signs of acute and subacute inflammation have disappeared and a discrete tumor mass persists, wide local excision is the safest method to pursue. Two considerations lead to this position: First, excision of the mass removes a pathologic lesion, the future course of which no one can foretell, and, second, microscopic examination of the specimen confirms the diagnosis and rules out the presence of carcinoma.

TRAUMATIC FAT NECROSIS

Extraperitoneal fat necrosis was described by Shattock [5] in 1896 in a lipoma of the thigh, and by Targett [6] in a lipoma of the breast. According to Hadfield,[7] who has reviewed the literature on this subject, Lanz,[8] Heyde [9] and Küttner [10] each observed

5. Shattock, S. G.: Saponifying Necrosis in a Lipoma of the Thigh, Tr. Path. Soc. London **47**: 246, 1896.
6. Targett, cited by Shattock.[5]
7. Hadfield, G.: Fat Necrosis of the Breast, Brit. J. Surg. **17**: 673 (April) 1930.
8. Lanz: Traumatic Fat Necrosis, Centralbl. f. Chir. **25**: 1253, 1898.
9. Heyde, M.: Zur Kenntnis der subkutanen Fettgewebsnekrose, Deutsche Ztschr. f. Chir. **109**: 500, 1911.
10. Küttner, W.: Ueber circumscripte Tumorbildung durch abdominale Fettnekrose und subcutane Fettspaltung, Berl. klin. Wchnschr. **1**: 9, 1913.

similar lesions in the subcutaneous tissues of the thigh and in abdominal and extra-abdominal fat. It remained for Lee and Adair,[11] however, to point out and emphasize the similarity between the clinical signs of fat necrosis of the breast and those of cancer. In a report of twenty cases, they established the disease as a clinical and pathologic entity (fig. 2).

In 1930 Hadfield [7] reviewed the literature and found forty-two fully recorded cases, to which he added three

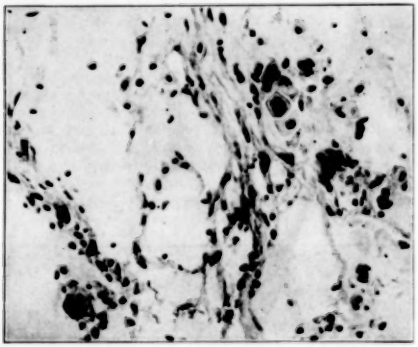


Fig. 2.—Photomicrograph showing foreign body giant cells, lymphocytes and plasma cells in a breast which was the seat of fat necrosis. This lesion induced all the clinical signs of cancer.

of his own. An additional case was recorded by Enzer [12] in 1931.

Traumatic fat necrosis is most common during the fourth and fifth decades; it has been noted in newborn infants and has been due to injury sustained at birth. It may or may not be associated with lactation. Hadfield found a definite history of trauma in 40 per cent of his cases, and Lee and Adair in 70 per cent. Pain and tenderness occur but are not constant. The mass which appears in the breast increases in size. The progressive increase in size, firmness and frequency of adherence of the skin suggest the presence of cancer to such extent that in 26 per cent of the forty-five collected cases (Hadfield) a radical amputation of the breast was performed. Retraction of the nipple occurs in 10 per cent of the cases.

The gross characteristics of the lesion are striking and depend on the stage during which the examination is made. On cross-section the surface is opaque and yellowish white and follows the contour of one or two fat lobules. The central portion of the lesion is frequently cystic, especially in the later stages, and contains an oily yellowish material. In older lesions there are usually small, chalky foci, and in still older lesions, punctate areas of calcification may be discovered.

In cases in which injury is a prominent feature and in which the tumor seems to appear at the exact site of the trauma, I have found transillumination of the breast a helpful diagnostic aid. The opacity under these circumstances is characteristic of hematoma and differs from the shadow cast by a solid tumor of the breast in which interstitial extravasation of blood does not occur. In several cases the patients were examined at repeated intervals over periods varying between three and six months. Coincident with the diminution in size of the palpable mass, transillumination showed a slow but continuous diminution in the extent and intensity of the opacity, followed by a complete disappearance of the shadow (fig. 3).

FIBRO-ADENOMA (THE PRESENCE OF A SINGLE TUMOR IN ONE BREAST)

Errors in differential diagnosis between fibroadenoma and carcinoma occur, as a rule, under two circumstances: (*a*) A small, circumscribed, movable isolated tumor exhibiting no attachment to the skin and no visible retraction of the nipple occurring in a young woman often leads to the clinical diagnosis of fibroadenoma when actually the lesion is carcinoma; (*b*) a slowly growing, firm, circumscribed, movable tumor exhibiting no attachment to the surrounding structures in spite of its size, frequently situated close to the nipple and areola in the breast of a woman about 50 years of age, many times leads to the diagnosis of fibroadenoma when actually the lesion is a duct carcinoma.

The only safe method to adopt under these circumstances is to regard the presence of a single tumor in one breast of a woman over 25 years of age as carcinoma until proved otherwise. Under no circumstances should an exploratory operation be performed unless the surgeon is prepared either alone or with the aid of a pathologist to establish the diagnosis at the operating table and proceed with the radical operation if carcinoma is discovered. The exploratory operation should be performed with all precautions against dissemination of tumor cells, and the line of excision

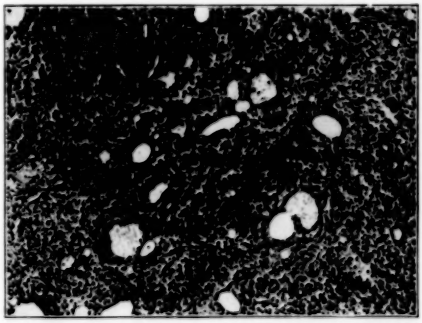


Fig. 3.—Photomicrograph showing fatty acid crystals surrounded by an inflammatory process, including foreign body giant cells.

should extend well beyond the palpable tumor. The wound should be washed with corrosive mercuric chloride in a dilution of 1:500.

MULTIPLE TUMORS IN ONE OR BOTH BREASTS

The presence of more than one tumor in one or both breasts immediately throws the weight of evidence against carcinoma and favors the diagnosis of a benign lesion. Under these circumstances the diagnosis lies

11. Lee, B. J., and Adair, F. E.: Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Cancer, Ann. Surg. **72**: 189 (Aug.) 1920; A Further Report on Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Cancer, Surg., Gynec. & Obst. **34**: 521 (April) 1922; Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Cancer, Ann. Surg. **80**: 670 (Nov.) 1924.

12. Enzer, N.: Traumatic Fat Necrosis of the Breast, Am. J. Surg. **12**: 102 (April) 1931.

between two possibilities: (1) multiple fibro-adenomas and (2) multiple cysts. When cysts are deeply situated and tense, fluctuation cannot be elicited, and this important differential sign is excluded. Transillumination usually helps to establish the presence of clear fluid cysts, but in exceptional examples an absolute decision as to the precise nature of the lesion may be impossible except by surgical exploration.

It is necessary to point out the importance of establishing the nature of the lesion under these circumstances. The subsequent history of fibro-adenomas that are not removed includes their enlargement, the development of cystic complications and the superimposition of sarcomatous changes. The occurrence of carcinoma in fibro-adenoma is very rare, as is also the sarcomatous transformation of fibro-adenoma.

On the contrary, cystic disease of the breast, especially when complicated by the neoplastic process giving rise to Schimmelbusch's disease, is a serious lesion. With few exceptions multiple palpable cysts in a breast are accompanied by smaller microscopic cysts. The extent to which the epithelial changes have progressed in the walls of such ducts and cysts is impossible to determine clinically. In fact, a malignant epithelial neoplasia which has transgressed its normal boundaries may already exist without giving clinical signs. In the presence of multiple tumors this event is rare but cannot be excluded.

The danger of multiple cysts is far greater than that of multiple fibro-adenomas; consequently a conservative surgical procedure is justified for fibro-adenomas and not for multiple cysts. One of the commonest errors that is made during operation on the breast is the attempted local removal of multiple palpable cysts, a portion of the breast which is the seat of numerous smaller microscopic cysts being left. The fallacy of this procedure is that once a cyst becomes clinically palpable, it is usually not subject to malignant change, as the epithelium in the larger cysts is usually degenerated. In the smaller cysts the epithelial cells are more active and respond more readiiy to whatever stimulus induced malignant transformation. To remove the larger cysts and leave the smaller ones is to remove the innocent lesions and leave behind the lesion in which carcinoma is most likely to be present or to develop subsequently.

These circumstances render it highly important to establish the differential diagnosis between multiple solid tumors (fibro-adenomas) and multiple cysts in order to plan the scope of the operation in the treatment of these patients.

When, after palpation and transillumination, there still remains a doubt as to the diagnosis, the solid or cystic nature of the lesions must be established at operation.

Before proceeding with the incision, a fine needle inserted in one of the masses usually establishes the diagnosis. An incision over the mass down to the outside wall of the tumor reveals the blue dome of the cyst which Bloodgood has so often emphasized, or the solid nature of the tumor when fibro-adenoma is present. When the solid or cystic character of the lesion has been established, the line of procedure is clarified. For widespread cystic disease of the breast, local mastectomy is the only sound procedure to adopt. I recognize that cystic degeneration may occur in fibro-adenomas, but these tumors are secondary and do not constitute the essential process as do the cysts in primary cystic disease of the breast (Reclus' disease).

HEMORRHAGIC AND SEROHEMORRHAGIC DISCHARGES FROM THE NIPPLE (BLEEDING NIPPLE)

The problem of diagnosis and treatment of breasts exhibiting spontaneous serohemorrhagic discharge from the nipple is becoming increasingly difficult. Formerly, when patients complaining of this sign came under observation after a mass had already become palpable, the diagnosis of duct carcinoma was simple and the line of procedure clear. As the laity has become educated and warned, the majority of women who now come under observation for this sign apply for treatment so early that no palpable lesion can be detected in the breast. The diagnosis of duct papilloma is justified in these cases with the unfortunate exception that an extremely early duct carcinoma cannot be ruled out completely. I have seen one example of this type in a breast in which no tumor could be palpated.

Transillumination is a diagnostic aid in localizing duct papillomas in the breast. In some cases, however, the papillomas are so small that no shadow can be detected on transillumination. This is especially true when the discharge is essentially serous.

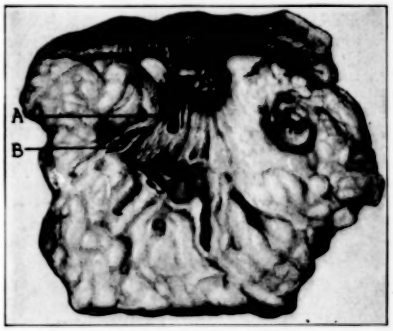


Fig. 4.—Drawing showing multiple duct papillomas (*A* and *B*) in the region of the nipple and the areola. No tumor could be palpated in this breast on clinical examination. Transillumination indicated opacities at these sites.

In older women in whom a hemorrhagic discharge from the nipple is more likely to be associated with duct carcinoma or in whom a duct papilloma is more likely to be complicated by carcinoma, especially in the presence of suggestive nodularity in the breast, wide surgical excision or local mastectomy is the safest method to adopt.

In younger women in whom the presence of carcinoma is less probable and to whom the loss of the breast is of greater concern, I do not feel justified in adopting such radical measures. On the other hand, I take the view that to permit such a lesion to remain untreated is a dangerous attitude to assume.

For younger women suffering from a serous or serohemorrhagic discharge from the nipple, especially when localization of the lesion is impossible or uncertain, the only methods heretofore available have been either to institute no treatment or to remove the entire breast. Surgical exploration of the breast with an attempt to perform a local excision of the lesion is exceedingly difficult and frequently unsuccessful.

These circumstances led me to consider the feasibility of treating the underlying lesion by means of interstitial

irradiation (removable platinum needles). It seemed that this method, which has met with a certain degree of success in the treatment of mammary carcinoma, should be even more efficacious in the treatment of duct papillomas or of early duct carcinomas, should they exist. This method possesses the advantage of avoiding removal of the breast in young women, to many of whom the surgical procedure constitutes a considerable psychologic shock. It possesses the disadvantage of not permitting microscopic confirmation of the diagnosis. The safety of this method as regards the future development of cancer is impossible to establish for many years.

To me this method appears sound on the basis of knowledge of the effects of this treatment on lesions which are already fully developed cancers.

Two patients suffering from serohemorrhagic discharge from the nipple who refused to permit any operative procedure have been treated by this method. In both, the treatment resulted in complete cessation of the discharge for eighteen months and eight months, respectively. This method is suggested in selected cases in young women. A fuller report on this problem with details of dosage and technic is in the process of preparation.

It is important to confine this method to a distinctly limited group of patients. For the present it should not be executed in women with breasts in which subsequent lactation is likely to occur. The method should be confined particularly to breasts exhibiting a serous discharge from the nipple in which no palpable tumor can be discovered, and particularly in which transillumination fails to reveal a shadow. It would be exceedingly dangerous and unwise to apply this method indiscriminately to all breasts which are the seat of serohemorrhagic discharge from the nipple.

ABSTRACT OF DISCUSSION

DR. FRANK W. HARTMAN, Detroit: For a good many years I saw papillomas in different parts of the breast, particularly about the nipple, and considered them benign. I was taught to believe, from my own work, that they were rather innocuous and that a bleeding nipple and the finding of a papilloma constituted a good prognosis. More recently, though, I have seen a number of breast papillomas that were benign in one area and malignant in another. Last year I saw three of these papillary adenocarcinomas apparently developing on the basis of a papilloma of the duct, so that the papilloma question becomes much more important. The question of a diffuse invasion of the duct and of malignant degeneration is to be kept in mind, rather than the old idea of a benign lesion without any danger of subsequent malignant degeneration.

DR. J. J. MOORE, Chicago: I am sure that pathologists enjoyed hearing a pathologist tell of the difficulty that may be encountered in differentiating grossly similar breast conditions by rapid frozen sections. I had a case of plasma cell tumor of the breast three months ago which clinically simulated a carcinoma and was diagnosed as such. The lesion was just over the pectoral muscle. The rapid frozen section here, fortunately, made the diagnosis without much difficulty. It did not have the marked hyperplasia that Dr. Cutler showed in his last slide, which gives so much trouble at times in differential diagnosis. I wish that Dr. Cutler would discuss more fully the different procedures he would employ in multiple adenofibromas and in the cystic conditions. Six months ago I saw a case of fat necrosis of the breast, but this was in a case of carcinoma and followed a trauma, in which x-ray needles had been applied. There were multiple areas of fat necrosis throughout the entire breast, some as large as 2 cm. in diameter.

DR. J. SHELTON HORSLEY, Richmond, Va.: The lesions that Dr. Cutler has drawn attention to so vividly are extremely interesting to the pathologist and also to the surgeon. While I don't know very much about pathology, I examine tissues from my operative cases for the fun I get out of it. I don't see how I could differentiate between cancer and hyperplasia in one of those slides that he showed. The thing that seems to impress me more is that in both fat necrosis and in the inflammatory lesion there are practically always foreign body giant cells. In any section in which one finds foreign body giant cells it might be well to be a little conservative in making a diagnosis of malignancy. From the surgical standpoint, I am wondering whether the application of fairly intensive roentgen therapy in these cases would be of benefit. Certainly it would be very helpful in carcinoma. I am wondering whether this type of inflammation would not also be benefited by roentgen therapy such as, for instance, boils or similar inflammatory processes are.

DR. ARTHUR F. ABT, Chicago: I should like to ask Dr. Cutler whether he knows of any relationship between the type of plasma cell mastitis that he has described and the benign prepuberty breast hypertrophy or mastitis in children.

DR. MAX CUTLER, Chicago: Dr. Hartman has raised the important question of the treatment of "bleeding nipple." There have been diametrically opposite opinions among authorities on the treatment of hemorrhagic discharges from the nipple, ranging from the one extreme that the lesion is innocuous and requires only observation to the other extreme presenting the opinion that complete mastectomy should be performed. This divergence of views on a problem of such practical importance is unfortunate and confusing, particularly to those who have had a limited experience with this type of lesion. During the last few years the evidence that has accumulated has definitely caused a shift of opinion in the direction of regarding this sign with greater suspicion. Most authorities now agree that the lesion underlying "bleeding nipple" is potentially dangerous and should be treated. Although the lesion may not be carcinoma when first seen, I think that most observers are now of the opinion that it is a danger signal and potentially cancerous. In two examples that I have seen, an early duct carcinoma was already present, although no tumor could be felt in the breast. Dr. Moore has raised the question of the difference in treatment of multiple fibro-adenomas and multiple cysts. The prognosis of the former is excellent, whereas the prognosis of the latter is problematic. Having established that multiple lesions of a breast are fibro-adenomas, I pursue a conservative policy. Cystic disease of the breast is potentially dangerous and having established that nodularity is due to cysts I resect that portion of the breast which is the seat of disease or remove the entire breast when there is diffuse and generalized involvement. The most frequent error that is made in this respect is to remove the palpable cyst, which is the least dangerous, and leave behind numerous microscopic cysts, which not infrequently become the seat of cancer. In response to Dr. Horsley's question, I may state that I have irradiated one breast which was the seat of plasma cell mastitis and found that the lesion regressed rapidly without suppuration. In response to Dr. Abt's question, I know of no relation between plasma cell mastitis and mammary hyperplasia in the new-born. The former is surely an infective process, and the latter distinctly a physiologic one. In closing, I wish to emphasize that the use of interstitial radiation for "bleeding nipple" must be limited to selected cases. Until more data have been accumulated it is safest to confine this method to the treatment of patients who refuse operation. It should not be employed in the treatment of a breast that may in the future become the seat of a lactation. One disadvantage of the method is that the presence of carcinoma cannot be established or excluded microscopically, as can be done by surgical excision. The important question that remains to be answered is whether the irradiation is adequate to sterilize an early duct carcinoma, should this state be present at the time of treatment.

Two and a Half Colds a Year.—Epidemiological studies indicate that on the average every man, woman and child in the United States experiences about two and a half colds each year.—Dochez, A. R.: A Limited Consideration of Certain Aspects of Acute Infection of the Respiratory Tract, *Medicine* **12**:245 (Sept.) 1933.

AN UNUSUAL HEMATOLOGIC REACTION TO NEOARSPHENAMINE

MURRAY L. RICH, M.D.

Instructor in Medicine, University of Cincinnati College of Medicine; Resident Physician, Cincinnati General Hospital

CINCINNATI

During recent years, numerous reports of blood dyscrasias occurring in the course of the arsenical treatment of syphilis have appeared in the literature. Although they are undoubtedly of rare occurrence, as indicated by Cole and his co-workers,[1] who found only two such complications in a series of 78,350 injections given to 1,212 patients, they are of sufficient interest to have attention drawn to them.

McCarthy and Wilson[2] recently reviewed seventy-nine cases and added two more of their own. From their analysis of this series they concluded that there are three main divisions into which these cases can be divided: (1) thrombocytopenic, (2) granulocytopenic and agranulocytic and (3) aplastic. The chief symptoms of the first group, purpura and bleeding, appeared immediately or within four hours in seven of the twelve cases, while the symptoms of the other two groups as a rule did not appear for several days or weeks. They state that the arsphenamines appear to have at least two separate effects, the one a depression of bone marrow function and the other a toxic action on the blood platelets in the peripheral circulation. While the benzene radical may be the causative factor in the production of depressed bone marrow function, they state that it cannot be held responsible for the acute thrombocytopenic cases. In this group there is no evidence of depressed bone marrow function; the destruction of platelets is an acute and a peripheral phenomenon. Their rapid regeneration speaks against any specific toxic action on the megakaryocytes.

This concept of a toxic action on the circulating platelets had previously been stated by other workers. Smith[3] described a case of acute purpura appearing immediately after an injection of neoarsphenamine. Although no examination was made at the time of the reaction, he suggested that the symptoms might be due to a sudden diminution in the platelets and an almost as prompt recuperation—a so-called platelet crisis. Stephens[4] stated that it seemed probable that the temporary thrombocytopenia accompanied by slight transient decrease in the red and white cell count were due to peripheral factors rather than to any effect on the bone marrow. Jui Wu Mu[5] found a temporary diminution in the number of circulating platelets in patients receiving neoarsphenamine. This diminution appeared in from ten to thirty minutes after injection and was followed within six hours by a slight compensatory thrombocytosis of from one to three days' duration.

Although it is apparent from these reports that the circulating platelets probably can be destroyed by the arsphenamines, it would be peculiar if the other elements of the blood should escape its action. Moore and Keidel[6] observed several patients with only prodromal symptoms of a reaction, and in each they found a decrease in neutrophil cells, with an eosinophilia of from 5 to 8 per cent, a slight increase in monocytes, and the presence of numerous fragile leukocytes. In another paper they[7] state that the dermatitis following arsphenamine is usually accompanied by blood changes, consisting chiefly of leukopenia, a decrease in the number of neutrophils, an eosinophilia, a monocytosis, and the appearance of many fragile leukocytes. They do not state whether these changes in the white cells are due to some aberration of marrow function or to a disturbance of the circulating cells.

Blood Counts

Date, 1933	Red Blood Cells	Hemoglobin, per Cent	White Blood Cells	Platelets	Degenerated Myelocytes	Degenerated Metamyelocytes	Degenerated Neutrophils	Degenerated Neutrophils	Degenerated Lymphocytes	Degenerated Monocytes	Degenerated Eosinophils	Degenerated Basophils
4/14*	2,400,000	..	12,200	Markedly diminished	10.0	22.0	43.5	7.5	16.5	0.0	0.5	0.0
4/15	.....	..	.....	Markedly diminished	0.5	0.0	92.0	0.0	4.5	2.5	0.5	0.0
4/17	4,500,000	86	16,200	Increased in number	0.0	0.0	80.0	0.0	15.5	2.0	2.5	0.0
4/18	4,000,000	..	.....	450,000	...	...	....	...	....	...	...	...
4/21	4,500,000	..	11,000	.....	...	...	....	...	....	...	...	...
5/17	4,000,000	86	14,000	Normal	0.0	0.0	70.0	0.0	28.0	1.5	0.5	0.0

* Three hours after injection.

Recently we have observed a patient in a reaction following neoarsphenamine in whom there was an immediate purpuric eruption. A blood smear taken a few hours later showed a very definite thrombocytopenia, and in addition there were neutrophilic cells showing changes which we believe are probably due to some direct toxic action in the circulating blood.

REPORT OF CASE

A young white woman, aged 18, first came to the outpatient clinic of the Cincinnati General Hospital in December, 1931, complaining of trouble with her eyes. A diagnosis of syphilitic interstitial keratitis was made, probably on the basis of congenital syphilis, and she was referred to the venereal clinic for treatment. She was faithful in returning for treatments and in the course of the next fourteen months she received three courses of bismuth compounds, one course of mercurial oil and two courses of neoarsphenamine. She was given a total of fourteen injections of neoarsphenamine of 0.5 Gm. each. In February and March, 1933, she was allowed a rest period and received no treatment. She returned to the clinic early in

From the Department of Internal Medicine, University of Cincinnati College of Medicine, and the Medical Clinic, Cincinnati General Hospital.

1. Cole, H. N.; DeWolf, Henry; McCuskey, J. M.; Miskjian, H. G.; Williamson, G. S.; Rauschkolb, J. R.; Ruch, R. O., and Clark, Taliaferro: Toxic Effects Following Use of the Arsphenamines, J. A. M. A. **97**: 892 (Sept. 26) 1931.

2. McCarthy, F. P., and Wilson, Robert, Jr.: The Blood Dyscrasias Following the Arsphenamines, J. A. M. A. **99**: 1557 (Nov. 5) 1932.

3. Smith, C. M.: Severe Bleeding and Purpura Following the Administration of Neoarsphenamine, Arch. Dermat. & Syph. **11**: 237 (Feb.) 1925.

4. Stephens, D. J.: Am. J. Syph. **15**: 333 (July) 1931.

5. Jui-Wu-Mu: Proc. Soc. Exper. Biol. & Med. **26**: 407 (March) 1929.

6. Moore, J. E., and Keidel, Albert: Stomatitis and Aplastic Anemia Due to Neoarsphenamine, Arch. Dermat. & Syph. **4**: 169 (Aug.) 1921.

7. Moore, J. E., and Keidel, Albert: Dermatitis and Allied Reactions Following the Arsenical Treatment of Syphilis, Arch. Int. Med. **27**: 716 (June) 1921.

April, and another Wassermann reaction was taken, which was strongly positive. Consequently, on April 7 another course of neoarsphenamine was started. She received 0.5 Gm., and one week later 0.3 Gm. Almost immediately following this injection she became unconscious. She was given an injection of epinephrine and recovered consciousness but was quite delirious. Then there developed a number of purpuric spots over her entire body, which were most marked around her eyes, over the chest and in the conjunctivae. The delirium passed away during the course of the next half hour, and she was sent into the hospital.

Examination at that time showed the purpuric spots previously mentioned. There was some clouding of the cornea of the left eye. The upper teeth showed the central notch in the incisors characteristic of inherited syphilis. The heart and lungs were normal. The pulse was 90. The blood pressure was 110 systolic, 60 diastolic. The liver edge was palpable two fingerbreadths below the costal margin. The spleen was not felt, though the next day the edge was just palpable. The uterus was enlarged, the fundus extending to the navel, there being a four months pregnancy. The extremities were normal. A blood count and smear were taken just after her admission.

The next day the patient was much improved. No new purpuric spots appeared. Within two days she felt perfectly well and was discharged from the hospital, recovered, one week after admission. She was seen again one month later. At that time she was feeling well except for a recurrence of the interstitial keratitis. No more purpuric manifestations had appeared.

The blood counts are recorded in the accompanying table. A urine examination the day after admission showed the presence of a moderate amount of albumin and numerous red cells. These disappeared after twenty-four hours and thereafter the urine was normal.

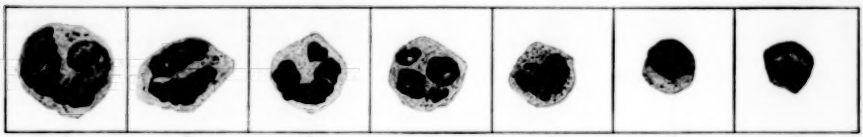
The smear taken on the admission of the patient to the hospital showed an interesting picture. The platelets were markedly decreased in number as judged from the slide, though unfortunately no count was made. The neutrophilic leukocytes showed evidence of marked regeneration. There were numerous myelocytes and metamyelocytes and the remaining cells were mostly of the band form. In addition to this there were 7.5 per cent of degenerated neutrophils. These cells were smaller than normal, some being no larger than red cells. The nuclei were pyknotic, the chromatin being condensed into small, deeply staining globules. The granules in the cytoplasm could not be made out in some of the cells, and in others only a few coarse granules persisted. There was vacuolization of the cytoplasm in some of these cells.

The majority of the lymphocytes did not undergo the changes suffered by the neutrophils. Two or three were seen, however, which showed evidence of some damage. The nuclei were shrunken and somewhat pyknotic, and the cytoplasm seemed to have undergone some condensation. The few platelets that were seen appeared normal. No evidence of damage to the red cells was observed.

Smears taken the next morning did not reveal any of these degenerated cells. The myelocytes and metamyelocytes had practically disappeared from the picture. There was a very high percentage of neutrophils, however, a differential count revealing 92 per cent.

COMMENT

To us, these changes indicated a rapid destruction of the circulating neutrophils by the neoarsphenamine. This was followed by a rapid regeneration of these cells, either as a compensatory reaction or due to a stimulating effect on the marrow by the neoarsphenamine. Certainly, there could be no toxic depression of the marrow activity in the presence of such evidence of regeneration. Likewise, the reduction of platelets must have been due to some peripheral action. Their prompt reappearance in the blood stream within the next four days preclude the possibility of any specific toxic action on the megakaryocytes.



A, cell illustrating the band form that made up the majority of the neutrophils; *B*, *C*, *D*, *E* and *F*, neutrophils that had undergone various degrees of destruction; *G*, a small lymphocyte that had undergone some degeneration. The drawings were made by Miss Mary Maciel.

SUMMARY AND CONCLUSION

In a case of acute thrombocytopenic purpura following an injection of neoarsphenamine, a smear taken three hours after the injection showed, in addition to the thrombocytopenia, the presence of numerous degenerated neutrophilic cells. There was also evidence of intense marrow stimulation. These conditions quickly disappeared. It is concluded that neoarsphenamine at times has not only a toxic depressant action on the bone marrow but also a destructive action on some of the circulating elements of the blood, and that the neutrophilic cells as well as the platelets are susceptible to its action.

Clinical Notes, Suggestions and New Instruments

COMMUNICATION BETWEEN THE TWO PLEURAL SACS, WITH LUNGS SHOWING TUBERCULOSIS HEALED AFTER THORACOPLASTY

CHARLES R. SMITH, M.D., AND H. S. WILLIS, M.D.
NORTHVILLE, MICH.

Demonstrable interpleural communications in man are notably uncommon. The anatomic basis of such natural and spontaneous phenomena is not clear. However, the basis for possible rupture or mechanical break does exist in the anatomic structure of the mediastinum. This has been studied in some detail by Nitsch,[1] who described two "weak" places in the structure of the mediastinum—one posterior to the upper portion of the sternum at the level of the second, third and fourth ribs, and the second in the posterior inferior portion of the mediastinum near the level of the eighth rib. When there is a pneumothorax with high pressure or when a pleural exudate is present, the mediastinum in the latter region may bulge to the opposite side, suggesting hernia. In the presence of pneumothorax with excessive pressure, particularly if adhesions are present, the possibility of a pleural tear in either of the weak places must be considered.

One instance of interpleural communication in man has been described by each of the following authors: Julien,[2] Dumarest

From the Wm. H. Maybury Sanatorium (Detroit Municipal Tuberculosis Sanatorium).

1. Nitsch, G.: Die "schwachen Stellen" des Mediastinums, Beitr. z. Klin. d. Tuberk. **13**: 1-20, 1910.

2. Julien, W.: Les communications interpleurales observées au cours de l'application du pneumothorax artificiel, J. méd. franç. **19**: 392 (Oct.) 1930.

and Bonafé,[3] Dumarest and Marinet [4] and Johansohn and Proborov.[5]

Recently, an opportunity has been afforded us to study a case of this condition.

REPORT OF CASE

A man, aged 35, Polish, had had acute renal disease in 1926, with frequency and albuminuria. At this time he complained of a dry cough, which gradually became productive, ease of fatigue, and loss of weight. A roentgen study of the lungs at this time did not reveal pulmonary tuberculosis. Following this episode, he was symptomatically well until October, 1928, when he noticed swelling of his ankles, greater fatigue, and a more productive cough. A diagnosis of tuberculosis of the left lung was made in December, 1928, and he was admitted to a hospital. In May, 1929, on admission to the Wm. H. Maybury Sanatorium, roentgen and physical examination revealed pulmonary tuberculosis which involved the whole left lung. The sputum contained tubercle bacilli. The urine showed a great deal of albumin and a few pus cells, a few red cells, and a few hyaline and granular casts. The specific gravity varied from 1.025 to 1.017. The red blood cells numbered 3,910,000. The hemoglobin was 74 per cent. The white blood cells fluctuated between 11,040 and 15,640, with a normal differential count. Analyses of the urine changed but little during his stay here. Guinea-pig inoculation with urinary sediment was negative for tuberculosis. The blood pressure was 110 systolic, 80 diastolic, on admission.

July 16, an attempt was made to induce pneumothorax on the left side. The initial pressure ranged between —4 and —8, and, after the introduction of 400 cc. of air, the pressure was between 0 and —4. Immediately after this, the patient complained of pain in the right side of the chest. The following day, 240 cc. of air was introduced, the final pressure being between +6 and —6. On the three following days 250, 400 and 250 cc. of air, respectively, were introduced, the final pressure being between +7 and —4. Fluoroscopic examination revealed no apparent collapse of the left lung, but the right lung was entirely separated from the chest wall by a thin layer of air. This was confirmed by roentgen studies. July 29, 400 cc. of air was introduced into the left side, which increased the collapse of the right lung by about 50 per cent, as seen by the fluoroscope. August 6, a needle was introduced into each pleural space and a series of manometric readings made before and after the introduction of various amounts of air into the left side. It was found after introduction of air that the pressures of the two sides increased together, the changes in pressure on the right lagging slightly behind those on the left. A total of 500 cc. of air was introduced at this time The pressures before introduction of air were, on the left, between +2 and —5: on the right, between +1 and —4. After 500 cc. of air was introduced into the left side, the pressures were: left, between +6 and —5: right, between +4 and —6. Roentgen studies on this date, before and after introduction of air (figs. 1 and 2) show the increase in pneumothorax on the right side after introduction of air into the left side.

August 21, a left phrenicectomy was done preliminary to a thoracoplasty, which was performed in three stages in December, 1929, and January, 1930. From this time, the pulmonary tuberculosis was a relatively unimportant part of the picture. The sputum decreased to a very small amount and was negative for tubercle bacilli after April, 1930. Symptoms of chronic nephritis with edema developed and became extreme. Convulsions occurred. The blood pressure at this time was 230 systolic, 150 diastolic. Chemistry studies of the blood added nothing of specific interest. The patient died, March 6, 1932, twenty-seven months after thoracoplasty was performed.

Postmortem Examination.—There was marked anasarca of the body and marked thoracic deformity from operation. Before the body was opened, 800 cc. of methylene blue solution was injected into the right pleural space in an effort to find the communication that had existed before thoracoplasty was performed. No channel of communication could be found. However, this is not surprising, for the left lung was tied firmly to the mediastinal structures and the left pleural space was entirely obliterated by adhesions.

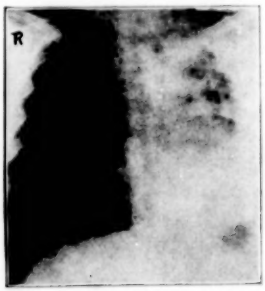


Fig. 1.—Degree of collapse on the right before leftsided pneumothorax refill, Aug. 6, 1929.

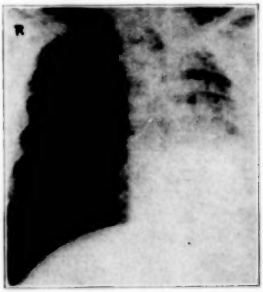


Fig. 2.—Degree of collapse on the right immediately following introduction of 500 cc. of air into the left side, Aug. 6, 1929.

Fig. 3.—Collapsed left lung. The collapse of the whole lung and the marked retraction of the apex are clear. Much of what appears at first view to be apical pulmonary tissue represents mediastinal contents. The arrow indicates the pigmented pleural line which separates lung from mediastinal structures. Although the lower half appears slightly darker than the upper, the texture and appearance is similar in all parts of the specimen.

The left lung was contracted to approximately one-fifth its original volume. It was atelectatic, like beefsteak in consistency, and noncrepitant. There were a few minute calcified nodules throughout the base. No signs of active tuberculosis and no cavity was present, and there was much gray-white scar tissue (fig. 3). The right lung was voluminous and markedly edematous and appeared entirely free from tuberculosis.

The remainder of the autopsy revealed cardiac hypertrophy, vascular sclerosis, large white kidneys and ascites. There was no evidence of tuberculosis.

The account of the histologic examination will be confined to that of the lungs. Fibrosis and scar tissue were taken as the criteria of previous disease. In areas of former disease,

3. Dumarest and Bonafé: Sur quelques accidents rares du pneumothorax artificiel, Rev. de la tuberc. **6**: 104 (Jan.) 1925.

4. Dumarest and Marinet: Sur un nouveau cas de communication interpleurale supposée, Bull méd. de la Station d'Hauteville-Lompnès, October, 1929.

5. Johansohn, L. F., and Proborov, A. E.: A Case of Communicating Pleural Cavities, Bor. s. tuberk. **10**: 172, 1932.

the scar tissue was dense for the most part, but in some areas it was more or less diffusely scattered, with fibers coursing in alveolar walls and alveolar exudate. The latter, often partially organized, contained numerous large, oval, mononuclear cells and many small round cells. The large bronchi showed considerable lymphoid cell infiltration in their walls. The smaller ones were distorted and well-nigh obliterated by scar tissue. Some had retained their columnar epithelium; others had a

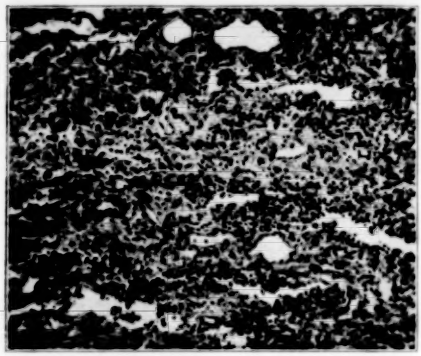


Fig. 4.—Section of completely collapsed area. Special stains reveal the presence of many elastic tissue fibers, indicating that the collapsed area originally contained some degree of disease.

lining quite like flat alveolar epithelium. In some, the mucosa had been shed in part or in toto. There was considerable fat in and just under the greatly thickened pleura in the apical region, particularly on the mediastinal aspect. Figure 4 illustrates the microscopic appearance of an area that contains a moderate amount of scar tissue.

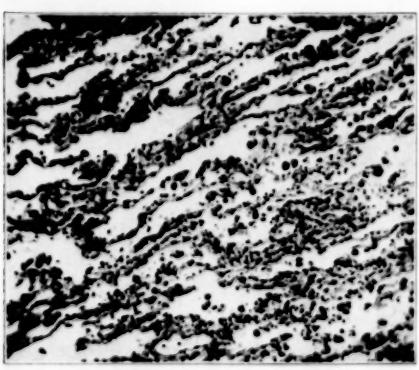


Fig. 5.—Section of semicollapsed area. The compressed and denuded alveoli, the cells and the cylindric capillaries are described in the text.

For the most part, in the nondiseased areas, the pulmonary tissue was partially collapsed, but in many places it was in a state of virtual atelectasis. Depending on the degree of collapse, alveoli were linear, long and very narrow, or they were more or less completely obliterated by pressure or were filled with large granular monocytes (epithelioid cells), small lymphoid cells and other small round cells of nondescript order. In such areas, the walls were thickened; the epithelium was intact in part and denuded in part. Throughout, the capillaries in the alveolar walls were large, circular in cross-section, and almost entirely devoid of blood. Throughout the lung, the arteries were greatly thickened and possessed an abnormally large amount of fibrous and elastic tissue. In nondiseased regions, many of the bronchi showed considerable atrophy. Some of these features are shown in figure 5.

The only report available in the literature on the pathologic end-appearance of the healed tuberculous lung, collapsed by thoracoplasty, is by Staemmler,[6] who presented data concerning a patient who died of a nontuberculous cause nineteen years after thoracoplasty had been performed. In his case, the tissue at former sites of the disease was distorted and densely scarred; that in nondiseased areas was compressed but not atrophic and was apparently unharmed by the prolonged collapse. Staemmler's impression was that simple collapse leaves the elastic fibers unharmed, while inflammatory reaction leads to their destruction. This has been shown to be true in collapse by pneumothorax.[7]

TRAUMATIC PERFORATION OF THE SIGMOID COLON

MOSES BEHREND, M.D., AND CLINTON S. HERRMAN, M.D.,
PHILADELPHIA

All textbooks dealing with the large bowel make mention of the possibility and cite reports of injury by instruments, bougies and other foreign bodies. However, excepting injury by compressed air, the current literature is singularly lacking in such reports. A hasty perusal of the literature for the past ten years failed to present a case similar to ours, which we feel warrants the following presentation:

S. W., a white man, aged 45, admitted to Mount Sinai Hospital, April 26, 1933, at 1:30 a. m., had been receiving treatment from a naturopath during the past seven or eight weeks for a nasal condition. This treatment consisted of an enema or colonic irrigation. At 8 p. m. of the preceding day (five and one-half hours before admission) while receiving such a treatment he suddenly experienced severe abdominal pain and exhibited the syndrome called shock. The naturopath took him to a physician, who administered one-fourth grain (0.016 Gm.) of morphine sulphate by hypodermic injection, without attempting a diagnosis. The patient returned to his home and called another physician, who again symptomatically gave morphine for the pain. After several hours a third physician was called, and he advised hospitalization.

Our examination was made one hour after admission to the hospital, at which time the patient was cyanotic, restless and in extreme pain. The abdomen was distended, rigid and tender, most markedly in the upper right quadrant. No peristalsis could be heard. The temperature was 102 F.; respiration rate, 40; pulse, 130. The blood pressure, which on admission was 120 systolic, 70 diastolic, had dropped to 85/?. The erythrocyte count was 4,350,000; the leukocyte count, 3,950. Immediate section was advised with a provisional diagnosis of (1) ruptured colon or (2) ruptured peptic ulcer.

Under spinal administration of 10 mg. of procaine hydrochloride, the abdomen was opened. The peritoneal cavity was distended and completely filled with fluid and feces. Particles of food débris floated on top. Suction apparatus was used to empty the peritoneal cavity. The intestines were inflamed and matted together by exudate. There was a perforation of the sigmoid colon 28 cm. from the anal orifice. The perforation was 1 cm. long with sharply defined margins. To the operator the wall of the intestine appeared of normal thickness without apparent diverticulum, ulceration, growth or inflammation. The wound was closed with a continuous Lambert suture of catgut, reinforced with linen thread. Rubber tubes were placed in the pelvis and the wound was closed by through and through silkworm sutures. A transfusion of 325 cc. of whole blood was given. The time of operation was thirty minutes. The patient died at 7 a. m.

6. Staemmler, M.: Veränderungen des Lungengewebes nach langerer Ausschaltung durch Thorakoplastik, Beitr. z. Klin. d. Tuberk. **67**: 518, 1927.

7. Roubier, C., and Doubrow, S.: Etude histopathologique du mode de l'action du pneumothorax artificiel dans la tuberculose pulmonaire, Rev. de la tuberc. **10**: 463 (Aug.) 1929.

Necropsy, performed by Dr. D. F. Meranze, disclosed the following salient features: The peritoneum contained only about 10 cc. of blood-tinged fluid. The omentum was hemorrhagic and adherent to underlying coils of intestine, which were markedly congested and adherent to one another. The closed perforation was sealed tight—both air and water proof. There was a small diverticulum 2.5 cm. from the perforation.

COMMENTS AND CONCLUSIONS

1. It was impossible to ascertain whether the rupture was caused by a perforation of an instrument or was due to forcible distention by fluid. We are inclined to the former belief because of the incised character of the perforation rather than a ragged tear.

2. The rapidity with which death ensued in this case is cause for consideration. The patient was practically moribund when taken to the operating room seven hours after the accident and died eleven hours after its occurrence. His rapid death, we believe, was the result of the massive absorption of toxins from the concentrated fecal emulsion under pressure. The extremely low leukocyte count likewise bespeaks an overwhelming toxemia.

5106 North Broad Street.

SPERMATOGENESIS FOLLOWING THERAPY WITH THE GONAD STIMULATING EXTRACT FROM THE URINE OF PREGNANCY

WILLIAM L. BROSIUS, M.D., AND ROBERT L. SCHAFFER, M.D., DETROIT

The rapidly accumulating literature on the pituitary gonad relationship and the effects of the gonad stimulating extract from the human urine of pregnancy deals almost entirely with animal experimentation. The entire subject of endocrinology owes its advancement from the speculative phase of the past century to its present level chiefly to the experimentalists. Clinical studies sufficiently controlled to permit careful analysis are relatively few.

The pituitary gonad relationship shows wide species differences even in members of the closely related rodent group—mice, rats, guinea-pigs and rabbits—on which most of the intensive work has been done. When information is considered from the many other species that have been studied—the frog, pigeon, duck, chicken, pig, cow, horse, dog, cat and monkey—wide variations in the mechanisms involved become apparent. This emphasizes the fallacy of predicting reactions in the human being from results obtained by animal experimentation in the pituitary gonad relationship, before such results are actually obtained in man. This also adds value to reports of the results of human therapy.

REPORT OF CASE

B. B., a man, aged 33, seen, March 21, 1931, complained chiefly of sterility. The patient was apparently normal in every respect until he acquired mumps at 27, with a complicating bilateral orchitis resulting in bilateral testicular atrophy. For the past three years he had noticed an increasing coarse intention tremor, speech hesitation, sluggishness, and occasional dizziness. There had been no loss of libido or potentia nor any castration signs, such as prostatic or vesicular atrophy, obesity or vasomotor changes.

The patient was 68 inches (173 cm.) tall and weighed 160 pounds (72.6 Kg.). Physical examination was normal except for bilateral atrophy of the testes, each of which measured about 18 by 11 mm. and was very soft.

The basal metabolic rate was plus 9 per cent. Chemical and microscopic examinations of the blood and urine showed no abnormalities. The blood gave a negative Wassermann reaction. There was complete aspermia on three examinations of condom specimens over a period of one month.

A preparation of anterior pituitary-like principle from pregnancy urine, 2 cc. (1.7 rat units per kilogram of body weight), was administered in the gluteal muscle twice a week. Within two weeks there was a definite increase in the size and firmness of both testes, and at three weeks occasional nonmotile spermatozoa were found. At six weeks there were numerous nonmotile spermatozoa, and at nine weeks large numbers of actively motile spermatozoa were present. The size of each of the testes steadily increased to 20 by 28 mm., and the consistency returned to normal. There was marked subjective improvement, including an increase in capacity for both mental and physical work. The tremor, speech difficulty, sluggishness and dizziness had disappeared.

After twelve weeks, treatment was discontinued. Four weeks later, only a few nonmotile spermatozoa were present, and three weeks later the testes were definitely softer, with only occasional nonmotile spermatozoa demonstrable. Treatment was resumed, and after three weeks a few motile spermatozoa made their appearance. At the fifth week they were present in large numbers and were very active. Numerous spermatozoa and testicular firmness were maintained for a year on a dosage of 2 cc. of the preparation of anterior pituitary-like principle from pregnancy urine once a week. A lapse of treatment for one month resulted in a decrease of spermatozoa and testicular softening. On the resumption of treatment, spermatozoa increased, and the testes became firm. For eight months this condition has been maintained on a dosage of 2 cc. every two weeks.

COMMENT

The gonad stimulating substance from the urine of pregnancy is not as yet positively identified with the sex hormone fraction of the anterior pituitary, and its source is not definitely known. Its physiologic effects are in many ways similar to those of the sex fraction of the anterior pituitary, but there are distinct differences. There are a few positive reports in the literature of spermatogenesis following its administration. Schockaert [1] reports spermatogenesis in the duck. Balawenetz [2] reports the hastening of spermatogenesis in immature animals. Kraus [3] reports hyperplasia of the interstitial cells of the testes and spermatogenesis following administration of Aschheim-Zondek's hormone to male animals. Schapiro [4] reports spermatogenesis in nine of twenty-six young human males. There are no reports of induced spermatogenesis in the adult human male.

Of the negative reports, an outstanding one is that of Engle,[5] who reports an increase in the size of the testes without spermatogenesis in immature monkeys and rats. In a summary of the literature, he states that, in the male mammal, it is generally agreed that none of these gonad stimulating factors are directly concerned with gametogenesis. The results in the case here presented indicate that man may be an exception to this general statement. The difference in results obtained may be due in part to differences in material used, in dosage and in duration of observation.

It should also be noted that in this case with marked bilateral testicular atrophy and complete aspermia there was retention of libido and potentia, and none of the signs of castration appeared. This would seem to indicate, as is commonly assumed, that the preservation of secondary sex characters, as well as the maintenance of the prostate and vesicles, are directly concerned with the interstitial cell of the testes and not with the tubule.

While generalizations from a single case must always be made with caution, it is possible to infer here that the pituitary did not hypertrophy as in castrates with production of an excess of sex hormone, as this patient responded to therapy with a pituitary-like substance.

SUMMARY

In a case of complete aspermia with bilateral testicular atrophy, following orchitis as a complication of mumps, spermatogenesis repeatedly followed the administration of the gonad stimulating extract from the human urine of pregnancy, and aspermia returned on the withdrawal of treatment. This seems to permit the interpretation that, in this case, the gonad stimulating extract from pregnancy urine stimulated spermatogenesis in a human being.

1304 Kresge Building.

The material used was a preparation of anterior pituitary-like principle from pregnancy urine, supplied by Parke, Davis & Co. During the first six months it contained 50 rat units per cubic centimeter; since that time it has contained 100 rat units per cubic centimeter.

1. Schockaert, J. A.: Anat. Rec. **50:** 381 (Oct. 25) 1931.
2. Balawenetz, S.: Virchows Arch. f. path. Anat. **274:** 585, 1930.
3. Kraus, E. J.: Klin. Wchnschr. **9:** 1493 (Aug. 9) 1930.
4. Schapiro, H.: Deutsche med. Wchnschr. **56:** 1605 (Sept. 19) 1930; Ztschr. f. klin. Med. **114:** 610, 1930.
5. Engle, E. T.: Endocrinology **16:** 506 (Sept.-Oct.) 1932.

DRAINAGE OF A SYRINGOMYELIC CAVITY, TWICE IN THE SAME PATIENT, THREE YEARS INTERVENING

CHARLES H. FRAZIER, M.D., Sc.D., PHILADELPHIA

In these columns almost three years ago, I[1] recorded my experience and the immediate results in the treatment of a syringomyelic cavity by drainage. The operation was performed, April 14, 1930. The cord was exposed by removal of the spinous processes and laminae of the seventh cervical and the first thoracic vertebra. The cavity was drained by an incision just to the right of the median line and, to prevent the lips of the incision uniting, a small strip of gutta percha was interposed. While the patient was seriously crippled, the principal indication for the operation was urinary incontinence. The subsequent history of this case has so many points of interest that I venture to submit it for publication.

In the first place, there has been no recurrence of the incontinence for the relief of which the operation was performed. This, of course, was a source of great satisfaction to the patient. But in the middle of January, 1933, the patient began to have attacks of respiratory embarrassment, both distressing and alarming. In addition, she developed a right-sided ptosis and could speak only in a whisper. Although her condition seemed desperate, we ventured to have her transported by ambulance some 90 miles for readmission to the University Hospital.

It was quite evident from the symptoms as described that the process had extended somewhat cephalad since the first operation. But to assure myself that the syringomyelic cavity had refilled, before consideration of a second operation I decided to explore with a lumbar puncture needle. The needle was introduced at the level of the previous laminectomy and soon penetrated the dural sac. Cerebrospinal fluid escaped freely. The stylet was reintroduced, the needle was advanced and again clear fluid escaped but at a much slower rate, and the rate of flow was not affected by jugular compression. Manifestly, the needle had penetrated the syringomyelic cavity, which had evidently refilled, since about 9 cc. of fluid escaped, presumably from the redistended cavity.

If, as we presumed, the drainage opening had closed and the cavity had refilled, the indications for operation were as clear and justifiable as they were in the first instance. Accordingly, February 2, the spinal sac was reopened through the original incision. On inspection there was no trace of the incision made in the cord three years before. On the surface the cord appeared quite normal except at one point where there was an adhesion between the arachnoid and the cord. I selected this point for my incision. The cord was steadied with a small hook and an incision 2 cm. long made into the syringomyelic cavity. The second incision must have been precisely at the site of the incision of three years before, for lying in the cavity at that level I saw the tiny strip of gutta percha, which had been introduced at the first operation in the hope of preventing the lips of the chordotomy wound from closing. Evidently, the strip of gutta percha had fallen into the cavity and the wound had closed over it. To prevent the gutta percha strip from being dislodged again, I secured it in place with a silver clip, clamped to the ridge of the chordotomy wound.

During the five months since the second chordotomy there has been a striking improvement. The alarming symptoms have disappeared, the patient's voice has returned, and she can partially open her right eye. She has returned to her former regimen and is carrying on where she left off before the setback in December, 1932.

No attempt has been made to describe in detail the syringomyelic picture. This communication purports only to bring to the reader's attention the experience of a patient with syringomyelia (1) operated on twice, (2) with an interval of three years between the first and second operation, and (3) with striking improvement after each operation, and to call the attention of the medical public to the propriety of resorting to a second operation should there be signs of recurrence or progression of the lesion.

3400 Spruce Street.

1. Frazier, C. H.: Shall Syringomyelia Be Added to the Lesions Appropriate for Surgical Intervention? J. A. M. A. **95**: 1911 (Dec. 20) 1930.

Council on Pharmacy and Chemistry

CLAVIPURIN NOT ACCEPTABLE FOR N. N. R.

Report of the Council

ON CONSIDERATION OF THE COUNCIL'S ACTION ON CLAVIPURIN, AS SET FORTH IN THE FOLLOWING REPORT, AND THE STATEMENT BY THE MANUFACTURER, GEHE & COMPANY, THAT THIS FIRM COULD NOT COOPERATE IN MAKING THE PREPARATION ACCEPTABLE, GANE & INGRAM, INC., THE AMERICAN DISTRIBUTOR, HAS INFORMED THE COUNCIL THAT IT HAS NO INTENTION OF MARKETING CLAVIPURIN IN THIS COUNTRY. AS A CRITICAL ADDITION TO THE LITERATURE ON ERGOT PRODUCTS AND FOR THE INFORMATION OF PHYSICIANS, THE COUNCIL AUTHORIZED PUBLICATION OF THIS REPORT.

PAUL NICHOLAS LEECH, Secretary.

Clavipurin is a preparation of the alkaloids of ergot (claviceps purpurea) manufactured by Gehe and Co. A. G. of Dresden and marketed in this country by Gane and Ingram. It is stated to contain (in the form of tablets, or as solution in vials and ampules) "the entire complex of the uterus-active alkaloids in exact dosage, in purest and isolated form." No statements appear on the labels of any of the dosage forms as to their alkaloid content or pharmacologic activity in terms of some standard preparation.

The active principles of Clavipurin are claimed to represent ergotamine and ergotoxine. According to the claimed method of preparation, the composition of the finished product would vary with the proportions of the alkaloids in the crude drug. The relative proportion of ergotamine and ergotoxine present would not be of much importance, as these have practically equal potency, but since ergotaminine and ergotine also occur in the crude drug and are of considerably less activity than the other two alkaloids, the relative amounts of the latter would considerably modify the activity of the preparation. Hence pharmacologic assay would be essential, even assuming that Clavipurin contains only the alkaloids and no contaminating substances, which seems unlikely.

At the request of the A. M. A. Chemical Laboratory the firm supplied specimens of Clavipurin powder in addition to the foregoing dosage forms, for assay. In a letter, the firm stated that 0.6 Gm. of Clavipurin powder is sufficient to make 3 Kg. of solution or 1,000 tablets. This would represent 0.2 mg. per gram (or approximately per cubic centimeter) of solution, or 0.6 mg. per tablet. In another communication, the firm claimed, further, "Each tablet is guaranteed to contain 0.5 mg. of pure alkaloids." Presumably the powder is intended to represent the pure alkaloids, although it is not so stated.

In the "literature" submitted by the firm, the following statements appear as to the alkaloidal content of Clavipurin solution:

0.18 mg. per cc. (Schubel and Straub)
0.6 mg. per cc. (Mahn and Reinert)
1.0 mg. per cc. (Roseno)
5.0 mg. per cc. (A. Braun)

The only one that approximates the claimed content is that of Schubel and Straub. The Council's referee found no satisfactory explanation of this divergence.

Specimens of Clavipurin powder, tablets and solution were assayed for the A. M. A. Chemical Laboratory by two independent investigators working in different laboratories. One of these workers (designated *a*) assayed the preparations pharmacologically both by blood pressure and by the U. S. P. cock's comb methods against fresh preparations of Fluidextract of Ergot U. S. P. as standard. The other (designated *b*) employed the U. S. P. method, the Broom and Clark method and Smith's Chemical method against ergotamine tartrate crystals as standard. The results obtained are as follows:

1. (*a*) 75 mg. of Clavipurin powder is equivalent to about 1 cc. of the U. S. P. fluidextract, which represents about 0.05 mg. of ergotamine tartrate. The powder then contains the equivalent of about *0.67 per cent* of this alkaloid; (*b*) 1 mg. of Clavipurin powder is equivalent to from 0.15 to 0.2 mg. of ergotamine tartrate, representing from *15 to 20 per cent*. Determinations by *a* and *b* were made on different samples of the powder. The Council's referee has no information as to

whether or not these came from the same lot. This indicates a difference in activity of about 3,000 per cent; if there is doubt as to the validity of the observations, this would seem to apply only to the result obtained by *a*, since the determination of *b* was checked by three different methods; however, in the former, 50 mg. had no effect on the cock's comb, which seems to indicate that the first determination was correct and that the specimen used was practically inactive.

2. (*a*) 1 cc. of the solution represents from 0.5 to 0.67 cc. of the U. S. P. Fluidextract or is equivalent to approximately *0.25 to 0.34 mg. of ergotamine tartrate per cubic centimeter;* (*b*) Clavipurin solution is equivalent to about *0.25 to 0.3 mg. ergotamine tartrate per cubic centimeter.*

Clavipurin solution therefore appears to represent a little more than half the potency of the U. S. P. Fluidextract Ergot; both the foregoing values exceed that claimed by the firm. Either more of the powder is used for making the solution than is claimed, the powder has deteriorated whereas the solution has not (this appears unlikely), or the solution was not made from powder having the assayed potency.

3. (*a*) One tablet is equivalent to from 0.4 to 0.75 cc. of U. S. P. Fluidextract, representing about *0.2 to 0.38 mg. of ergotamine tartrate;* (*b*) one tablet contains approximately *0.315 mg. of ergotamine tartrate.* These values are about one-half those claimed for the tablets (from 0.5 to 0.6 mg.).

In no case, therefore, have these independent assays confirmed the claims of the firm; the values found vary from *0.67 to 150 per cent of the claimed potencies.*

Clavipurin appears to be practically free of histamine, acetylcholine and tyramine.

The firm, being apprised of these results, replied that Clavipurin is subject to "periodical control examinations by the Pharmacological Institute of Kiel University (Professor in ordinary Dr. Kulz)"; and that a recent assay against Gynergen as standard showed two specimens to be equal in activity to, and one to have 120 per cent of, the potency of Gynergen. Since the reports to the A. M. A. Chemical Laboratory show the Clavipurin solution to exceed the declared potency, the latter result seems quite plausible. However, the firm does not claim that the activity of *each batch* of Clavipurin is controlled by pharmacologic assay; and the determinations quoted certainly indicate a lack of adequate standardization.

Therapeutic Usefulness.—The chief claims for Clavipurin are based on the clinical use, which apparently dates from 1923. Most of the reports available to the Council's referee are enthusiastic, and several attempt to show that toxic results with Gynergen are comparatively common while these do not occur with Clavipurin. Since Clavipurin is not a pure alkaloid and is apparently quite variable in activity, the claimed lesser toxicity is very likely due to a lower potency. It is difficult to see how any other explanation can be adduced for this, since Gehe and Company claim precisely the same actions for Clavipurin as have been demonstrated for Gynergen. No evidence has been submitted that Clavipurin contains any substance that would tend to diminish the noxious effects; and the two active alkaloids ergotamine and ergotoxine have precisely the same toxicity, according to competent and adequately confirmed observations in the literature. Gynergen solution-N. N. R. contains approximately four times as much and Gynergen ampules-N. N. R. about twice as much ergotamine tartrate as the ergotamine tartrate equivalent of the Clavipurin solution and ampules assayed for the A. M. A. Chemical Laboratory.

The therapeutic results with Clavipurin appear to approximate those obtained with the standard fluidextract of ergot and with the accepted injectable preparations; however, so long as a product has a fair oxytocic potency, even if this is not uniform, it may be found clinically effective in a considerable number of cases, particularly (as is common practice) when it is used prophylactically. But in the literature submitted by the firm, the recommendations by several authors that the dosage be repeated indicates that Clavipurin is no more reliable in those cases with real uterine inertia than the assay data indicate.

Gane and Ingram was informed that if acceptance of Clavipurin was desired the firm would be required within a reasonable time to make the name and advertising acceptable to the Council, to present complete data as required by the Council's rules, to standardize the product so as to make it acceptable to the A. M. A. Chemical Laboratory, and to word the labels so as clearly to indicate the potency in terms of a standard preparation. This was transmitted to Gehe and Company; this firm replied in part that it would not be able to comply entirely with the Council's requirements.

Clavipurin was therefore declared unacceptable for New and Nonofficial Remedies because the composition is not fully revealed, because it is not adequately standardized as to potency, and because it is marketed under a nondescriptive proprietary name with unwarranted therapeutic claims.

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

RAYMOND HERTWIG, Secretary.

NOT ACCEPTABLE

ROMAN MEAL

The Roman Meal Company at Tacoma, Wash., submitted to the Committee on Foods a product called "Roman Meal," prepared from coarsely ground whole wheat and rye with smaller proportions of wheat bran, and pulverized, partially defatted flax seed. The mixture is heated to 70 C. to destroy any insect infestation, sifted, and automatically filled into cartons.

Analysis (submitted by manufacturer).—

	per cent		
Moisture	8.3		
Ash	3.3		
Fat (ether extraction method)	3.2		
Protein (N × 6.25)	15.5		
Crude fiber	6.2		
Carbohydrates other than crude fiber (by difference)	63.5		
	per cent		per cent
Phosphorus as P_2O_5	1.690	(as P	0.737)
Sulphur as SO_3	0.041	(as S	0.016)
Chlorine (Cl)	0.021		
Calcium as CaO	0.112	(as Ca	0.080)
Magnesium as MgO	0.545	(as Mg	0.329)
Iron as Fe_2O_3	0.0086	(as Fe	0.0060)
Aluminum as Al_2O_3	0.0036	(as Al	0.0019)
Silicon as SiO_2	0.020	(as Si	0.009)
Sodium as Na_2O	0.048	(as Na	0.036)
Potassium as K_2O	0.758	(as K	0.629)

Discussion of Label and Advertising.—The label and advertising make the following claims:

"Roman Meal contains all the life-giving properties of whole wheat and rye . . . is now sterilized by subjection to a very high degree of heat . . . is a perfectly balanced human food . . . a great aid to digestion and a positive relief to constipation . . . For over a century there has been a most urgent need for a simple and perfectly balanced human food that would prevent the development of abnormal or disease conditions in the digestive tract . . . for a balanced food that shall offset the evils and deficiencies of the devitalized and over-refined present-day diet. . . . . By a 'balanced' food we mean that it contains, in proper proportions, all of the elements which the body requires in maintaining a high degree of health and vitality. . . . These four ingredients (of Roman Meal) are combined in such proportions as to make a perfectly balanced human ration for family use. . . . Bear in mind that no one grain can be balanced. It requires combination. ROMAN MEAL is such a combination, developed scientifically by a physician. . . . It contains all the vital, health-giving mineral salts and vitamines. . . . When a child is fed ROMAN MEAL . . . it also receives proper amounts of soda, potash, lime, phosphorus, iron and other mineral matters to form bones, teeth, nerve and brain, give tonicity to muscles and hydrochloric acid for digestion and coloring matter to the blood. . . . Eat Roman Meal for health . . . it aids the digestion of other foods."

Roman Meal is not a "perfectly balanced food," since it does not contain all the required nutritional elements in adequate proportions. It is not "an aid to digestion" nor is it a "positive relief to constipation." The product contains considerable indigestible material, which may aid in overcoming constipation due to insufficient bulk in the diet; it will not, however, correct pathologic constipation and may aggravate such a condition. It will not "prevent the development of abnormal or disease conditions in the digestive tract." The food lacks a number of nutritional elements required for "maintaining a high degree of health and vitality," and others are insufficient in quantity. The cereals and flax ingredients are not combined in any proportions known to have nutritional significance. "No one grain can be balanced" nor can any combination of grains; all the

grains have approximately the same nutritional limitations. Roman Meal was not developed "scientifically" by a physician. It is lacking in some of the vitamins and is only a fair source of others. The "mineral salts" as a whole are quite insufficient. Neither the minerals nor the vitamins are "health giving." "A child fed Roman Meal" does not receive "proper amounts" of the "minerals" to "form bones, teeth, nerve, brain, etc." The food is no more an aid "for health" than are other common foods.

The advertising goes on to claim:

"ROMAN MEAL 'cools the blood' because of its alkaline Flaxose. . . . Ordinary cereals 'heat the blood' in summer because they are acid. . . . Correct any 'over-acid' condition by the use of the naturally alkaline food, Roman Meal. . . . Lost Appetite will not trouble you during the hot spell if you counteract the 'excess-acid' of ordinary foods with the corrective alkaline properties of Roman Meal. . . . In hot weather the 'over-acid' contents of meats, white flour and refined cereals produces lazy, drowsy, 'hate-yourself' feelings. Roman Meal and other alkaline foods insure you more ambition and energy . . . that you have ever known in summer. . . . Roman Meal, because of its Flaxose, is the only alkaline cereal sold. It . . . clears the skin. . . ."

Roman Meal does not "cool the blood because of its alkaline flaxose" nor do "ordinary cereals heat the blood in summer because they are acid." The temperature of the blood of a healthy person is practically the same throughout all seasons. Roman Meal is not an "alkaline food" as claimed; estimations from the mineral content indicate that it is slightly acid producing (estimated potential acidity [Sherman, H. C.: Chemistry of Food and Nutrition, ed. 4, chapter XII, pp. 275-276] . . . 0.4 cc. normal acid). Therefore, Roman Meal will not correct any "over-acid" condition. There is no authoritative information indicating that appetite is lost during the hot season because of "the excess of acid of ordinary foods" nor that the acid producing foods such as meats and cereals produce "lazy, drowsy hate-yourself feelings." Even if this were true, Roman Meal, because of the practically neutral value of its minerals, would be incapable of counteracting any acid effects of other foods. "Roman Meal and other alkaline foods" are not known to insure "more ambition and energy . . . in summer." The alkali requirements of the body are met by vegetables, fruit and milk. The aspersions directed at "beef, white flour and refined cereals" because of their acid metabolic residues are unwarranted; these are wholesome foods and have a proper place in the diet as a whole. Roman Meal is not "the only alkaline cereal sold." Another cereal on the market is far more alkaline. In fact, it is incorrect to designate Roman Meal as an "alkaline cereal." Roman Meal will not specifically "clear the skin" any more than will many other common foods.

It is further alleged that:

"For generations bran and flaxseed, as 'bran mash' have been fed to stock as a 'conditioner' and to increase the quantity and quality of milk. ROMAN MEAL, because of its bran and flaxose content, has a similar effect upon the human. It is a most efficient galactogogue. . . . Flaxose is also added to compensate for the nutrition lost to any food by the addition of bran. Flaxose is three times as rich in protein as wheat, rye or oats. Thus, by adding flaxose and the brown flour from the aleurone layer of the grain berry to the granulated whole wheat and rye, we maintain in ROMAN MEAL proper balance between tissue building elements, saline matters and waste. . . . Bran is added in ROMAN MEAL for bulk or waste only. It is pure cellulose, therefore non-digestible; except in a limited way by action of the bacterial flora of the intestine, and the saline constituents cannot be appropriated by the human. . . . But bran does cause catarrh of the colon, used alone or used with refined grain products. To prevent this, with ROMAN MEAL, DEMULCENT FLAXOSE has been added, which, by its bland, soothing action, neutralizes the mechanical irritation caused by bran. . . . Flax is included for its oil, which soothes and lubricates, as well as for the fibre bulk which it supplies. . . . Flaxose is slightly hygroscopic and tends to prevent absorption of moisture from the fecal mass to dissolve fecal concretions. It also lubricates the intestinal wall. By both actions it lessens resistance to the intestinal flow and the increased propulsive force back of the fecal mass, caused by bran. ROMAN MEAL is a most positive aid to the physician in the treatment of constipation and its attendant ills; yet there will be no irritation to the sensitive alimentary mucosa as with the use of bran. . . . Because it contains the dark flour from the aleurone layer of the grains, ROMAN MEAL is rich in soluble salines. It thus differs materially from white flour, refined cereals and bran, or any combination of these; since flour and refined cereals contain but a trace or (of) salines and bran none (as far as the human is concerned). To add bran to any refined product does not restore balance. It adds bulk only; the important salines and vitamines are still absent—and these are even more important than bulk."

Roman Meal is not a galactagogue. The flax content does not "compensate for the nutrition lost by the addition of bran." The claim of "proper balance between tissue building elements, saline matters and waste" in Roman Meal is without meaning. Bran is not "pure cellulose"; it contains available nourishment. "Bran used alone" or "used with refined grain products" does not necessarily cause "catarrh of the colon." The addition of flax to Roman Meal cannot be expected to "neutralize the mechanical irritation caused by the bran." The claim "flax was included for its oil" does not accord with the information provided by the manufacturer that the oil is removed from the flax before it is incorporated in Roman Meal. Since the oil is removed, the flax will not "lubricate the intestinal wall" as claimed. The explanation of how Roman Meal acts on the intestine is largely fanciful. Roman Meal is not "the most positive aid to the physician in the treatment of constipation and its attendant ills" nor is there assurance that "there will be no irritation to the sensitive alimentary mucosa as with the use of bran." The statements regarding the "aleurone layer" ingredient and its contribution of "soluble salines" are largely without meaning. The claim that bran provides no available "salines" available to humans is incorrect. Contrary to claims bran also contributes vitamin B.

It is further stated that the ingredients of Roman Meal are

"cut in little granules that the food may be porous to the digestive fluids. Crushed or rolled foods tend to become amorphous and are not porous to the digestive fluids and their enzymes. Thus ROMAN MEAL PROMOTES digestion . . . is itself easily digested—it aids the digestion of other foods. . . . is rich in essential vitamins. . . . While not so rich in fat soluble 'A' vitamine, ROMAN MEAL, with the addition of cream, whole milk or cow butter, is richer than any other cereal in this vital element and abundantly sufficient for every possible need. . . . *Cure Constipation and you cure all.* Rheumatism, appendicitis, indigestion, stomach troubles, chronic headache, unsightly pimples and blotches, bad breath and scores of other ailments can be traced directly to constipation. . . . ROMAN MEAL is, indeed, a simple and natural remedy for some of the most widespread and insidious ills to which mankind is subject. . . . At the time when the body is in its formative stages ROMAN MEAL supplies the potash, lime, phosphorus, iron and other elements needed in laying the foundation of health that will carry the child through life. This is the period when the teeth are being formed. Deficiencies in diet result in weak tooth structure and it is a condition that cannot be corrected after the second teeth are formed. . . . ROMAN MEAL, if used regularly and consistently, will give your child the 'start in life' you owe him. . . . Physicians prescribe ROMAN MEAL for children, for brain and muscle workers, for athletes, for nursing and expectant mothers, for the aged, undernourished and anemic—for the sick and those who wish to maintain present good health. . . ."

Roman Meal is not "porous to the digestive fluids" because it is "cut into little granules" nor is it true by comparison that "crushed or rolled foods . . . are not porous to the digestive fluids and their enzymes." The explanation of how Roman Meal "promotes digestion" has apparent plausibility only. Roman Meal does not "aid the digestion of other foods," a claim implying digestive action as possessed by digestive enzymes. It is not rich in "essential vitamins." The claim that Roman Meal mixed with cream or butter "is richer than any other cereal in vitamin A" is worded to trick the reader to understand Roman Meal is rich in vitamin A, whereas it is contributed mostly by the cream or butter. Not all ills are cured when constipation is cured. The various ills related cannot be attributed in all cases to constipation. Roman Meal is not a remedy in any sense for "most widespread and insidious ills." It does not supply the various chemical elements stated in the quantity needed to "lay the foundation of health that will carry the child through life." Roman Meal is not specifically helpful for nourishment of teeth; to the contrary, foods such as Roman Meal lend to poor tooth development. Physicians do not specially prescribe Roman Meal as stated.

It is claimed that

"ROMAN MEAL was invented by a physician. The cereal manufacturer's idea has been to refine away all the coarse and darker parts of grains. This has removed the real food value, those parts which build muscle, bone, brain, nerve, keep the blood from becoming acid. This invites disease. It is common knowledge that rheumatism is caused by 'acid blood,' yet this is only one of many diseases caused by absence from the blood of the alkaline salts, obtained largely from the dark parts of grains. Roman Meal . . . retains all the alkaline salts. This makes for healthy blood. . . . Wheat is only about three-quarters as nourishing as rye, and only about one-third as nourishing as flax. Roman Meal is largely made up of rye and flax. It is, therefore, the most nourishing cereal ever sold. . . . It is the most perfect food ever devised. . . . It is non-starchy and does not ferment. It makes bone, muscle and nerve better than meat. Ordinary cakes and pastry are most injurious to the growing child, but ginger bread, cookies, muffins, gems and puddings as well as mush, made from ROMAN MEAL make ideal lunches between meals, for the child."

Contrary to the claims, refined cereals have definite food values; "coarse and darker parts of the grains" do not especially "build muscle, bone, brain, nerve," nor do they "keep the blood from becoming acid." Whole grain cereals have broader nutritional values than refined cereals but refined cereals have a proper place in a satisfactory diet. Rheumatism is not "caused by acid blood" nor are "many diseases" caused by absence from the blood of the "alkaline salts obtained largely from the darker parts of the grains." Roman Meal does not necessarily "make for healthy blood." It has never been demonstrated that "wheat is only about three-quarters as nourishing as rye, and only about one-third as nourishing as flax." Roman Meal is not "the most nourishing cereal ever sold." In fact, some other cereals provide much broader nutritional values. Roman Meal is far from being the "most perfect food ever devised." It is not "non-starchy," and it may "ferment." It does not "make bone . . . better than meat" and Roman Meal lunches are not "ideal for children."

The advertising is an elaborate attempt to transform Roman Meal into a medicinal food with fictitious health properties; it has all the appearances of studied deception to exploit the gullible and the uninformed in dietetics, nutrition and physiology. It grossly misrepresents the product, is replete with misinformation, and promotes self diagnosis and self treatment by the sick with possible disastrous results. It is a corruption of the purpose of advertising to the trade and to the public. Insidiously false advertising of this character tends to degrade food advertising to subtle trickery.

Roman Meal, because of its grossly deceptive advertising, will not be listed among the Committee's accepted foods.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

McCORMICK'S BEE BRAND WHITE PEPPER

Manufacturer.—McCormick and Company, Inc., Baltimore.

Description.—Ground white pepper (berry of Piper nigrum L. with the epicarp removed).

Manufacture.—White pepper is prepared from black pepper berries by removal of the outer black epicarp. The pepper berries almost completely mature on the vine. After picking they are allowed to stand for several days and are bruised and washed to remove stems and to separate the pulpy epicarp. The inner portion of the berry is dried on mats, exported to the company's packing plant, cleaned, ground and packed in tins.

Analysis (submitted by manufacturer).—

	per cent
Moisture	11.9
Total ash	1.4
Acid insoluble ash	0.1
Volatile ether extract	1.0
Nonvolatile ether extract	7.3
Total nitrogen	2.0
Piperin nitrogen	0.4
Piperin	6.2
Protein nitrogen	1.6
Protein (N × 6.25)	10.2
Starch (diastase method)	55.2
Crude fiber	3.9
Carbohydrates other than crude fiber (by difference)	64.3

Claims of Manufacturer.—Conforms with the respective United States Department of Agriculture definition and standard.

AMERICAN BRAND EVAPORATED MILK UNSWEETENED STERILIZED

Packer.—Oatman Condensed Milk Company, Dundee, Ill.

Description.—Canned, unsweetened, sterilized, evaporated milk, the same as Oatman's Brand Evaporated Milk (THE JOURNAL, April 16, 1932, p. 1376).

KRASDALE BRAND CALIFORNIA WHITE MEAT TUNA

(PACKED IN HIGH GRADE SALAD OIL)

Packer.—Hovden Food Products Corporation, Monterey, Calif.

Distributor.—A. Krasne, New York.

Description.—Cooked light meat of Yellowfin Tuna with added salt, refined cottonseed oil and sour pickle; the same as Portola Brand California Tuna (THE JOURNAL, May 28, 1932, p. 1885).

EVANS' E-Z-BAKE FLOUR (BLEACHED)

Manufacturer.—Acme-Evans Company, Indianapolis.

Description.—An "all purpose" short-patent flour milled from hard and soft wheats; bleached.

Manufacture.—Selected soft and hard wheats are cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with nitrogen trichloride (one-seventh ounce per 196 pounds).

Claims of Manufacturer.—Intended for all baking purposes.

CLAPP'S ORIGINAL PUREE OF BEETS

(ADDED SALT)

Manufacturer.—Harold H. Clapp, Inc., Rochester, N. Y.

Description.—Strained cooked beets. The method of preparation is efficient for retention in high degree of the natural vitamins and minerals. A small amount of salt is added.

Manufacture.—Purchased canned beets are strained in an atmosphere of steam. The subsequent treatment is essentially that described for Clapp's Original Baby Soup (THE JOURNAL, Aug. 19, 1933, p. 605).

The purchased canned beets are prepared, canned and processed as described for the purchased canned carrots (THE JOURNAL, June 24, 1933, p. 2011).

Analysis (submitted by manufacturer).—

	per cent
Moisture	90.5
Total solids	9.5
Ash	0.4
Salt (NaCl)	0.3
Fat (ether extract)	0.2
Protein (N × 6.25)	0.9
Crude fiber	2.4
Carbohydrates other than crude fiber (by difference)	5.6

Calories.—0.3 per gram; 9 per ounce.

Vitamins and Claims of Manufacturer.—See Clapp's Original Baby Soup (THE JOURNAL, June 24, 1933, p. 2011).

CRESCA HYGEIA FIGS

(NATURAL SUN DRIED UNSULPHURED)

Importer and Distributor.—Cresca Company, Inc., New York.

Description.—Unsulphured, cleaned, dried Cresca Choicest Smyrna Locoum Figs.

Manufacture.—The figs are the same as those used for Cresca Choicest Smyrna Locoum Figs. Not sulphured (THE JOURNAL, Nov. 19, 1932, p. 1780). Cleaned, dried figs are packed in waxed paper in cartons.

SNOW DROP FLOUR (BLEACHED)
SILVER SPRAY BEST PASTRY FLOUR (BLEACHED)
GLOBE PASTRY FLOUR (BLEACHED)

Manufacturer.—Federal Mill, Inc., Lockport, N. Y.

Description.—Bagged soft winter wheat "straight" flour; bleached.

Manufacture.—Selected soft white winter wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. The flour streams are blended and bleached with nitrogen trichloride (one-fourteenth ounce per 196 pounds) and with nitrogen oxide.

Claims of Manufacturer.—For baking cakes, biscuits and pastry.

PHYSICIANS SPECIALIZING IN PATHOLOGY AND CLINICAL PATHOLOGY

PREPARED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The present list of physicians specializing in pathology and clinical pathology is the outgrowth of the survey of clinical laboratories that was begun in 1924. At that time the House of Delegates instructed the Council to ascertain how best to regulate the clinical laboratory situation. A committee of pathologists, including members of the American Society of Clinical Pathologists and the American Association of Pathologists and Bacteriologists, was appointed to assist the Council in securing information in regard to commercial clinical laboratories.

The original request for some regulation regarding clinical laboratories came from the clinical pathologists in 1923, the two societies mentioned having worked independently for some time toward a solution of the problem. Some means of eliminating lay specialists in this field was sought. It was held improper for any person not qualified educationally and legally to assume the responsibility of making a diagnosis or prognosis, or of acting as a consultant with regard to disease in the human body. Where the law does not restrict diagnosis and the interpretation of laboratory observations to qualified medical practitioners, all other means available should be used to protect the patient against the incompetence of the lay specialist and the nonmedical clinical laboratory.

For seven years the Council, with the assistance of the committee of pathologists, approved clinical laboratories according to a minimum standard, the principal emphasis being on the qualifications of the pathologist. The list of approved laboratories was published periodically, and physicians were urged through the publications of the Council to patronize only such clinical laboratories as were under the direction of physician pathologists. In 1931 the listing of clinical laboratories was changed and has since been a list of pathologists and clinical pathologists, on the basis of their education, training and experience. It was also expanded to include teachers and those employed in hospital, research or governmental laboratories. The present list of physicians specializing in pathology and clinical pathology contains 704 names. Applications for recognition are being considered regularly. Thus it may be said that the clinical laboratories now recognized by the Council are those which are under the direction of the pathologists listed.

The progress made in this endeavor to distinguish the medical from the nonmedical clinical laboratories has been in direct proportion to the cooperation extended by the profession. Many physicians in the past, not appreciating fully the importance of medical supervision over their work, had patronized lay laboratories. The work of the Council has been responsible to some extent for the decrease in the use of lay clinical laboratories by the medical profession. The patient should be given the benefit of the most accurate analysis with regard to the source, nature and progress of disease. In order that this may be assured, physicians should have their work carried out in laboratories under the supervision of capable physician-pathologists.

In 1928 the Section on Radiology requested the Council to carry out a similar work for radiologists. A list of physicians specializing in radiology is also maintained by the Council in the same manner as the list for pathologists and clinical pathologists. At the present time, 1,230 radiologists have been admitted to the Council's list.

METHOD OF PREPARATION

The method of preparing a list of physicians specializing in pathology and clinical pathology is as follows:

1. Physicians expressing a desire to be considered for listing receive a form on which they submit data regarding their medical graduation, internship, licensure, postgraduate work, experience, special society affiliation, hospital appointments, publications and other pertinent data.

2. The data submitted are verified by comparison with the biographic files of the American Medical Association, by the official reports of their medical college of graduation, and by reports from hospitals or medical institutions in which the candidates may have served. Former teachers, preceptors and associates are often consulted. The official reports received from boards of medical education and licensure are checked, and membership in special societies is confirmed. Records in government service or other employ are used.

3. The questionnaires are then reviewed in the office of the Council and those which, by their own statements, clearly do not fulfil the essentials are eliminated. The names of applicants with their qualifications are sent to the members of the advisory committee. This advisory body numbers about 175 specialists, who were selected from among the pathologists who are best qualified to act in that capacity, nominations being made mainly by pathologists.

4. Advice regarding the eligibility of candidates is obtained from individual members of the advisory committee and each is asked to submit his opinion or recommendation independently of others. Recommendations regarding each candidate are, as a rule, secured from several advisers, averaging from three to six. In the light of all data thus far obtained, the applications are then taken up by the Council on Medical Education and Hospitals at its next quarterly meeting.

The place of the Council on Medical Education and Hospitals in this work is that of an impartial, fact-finding, classifying body. The expense is borne entirely by the American Medical Association. The only motive is the substantial betterment of pathologic service.

BIBLIOGRAPHY

The initial steps, beginning with the authorization of the movement by the House of Delegates of the American Medical Association at the annual session in San Francisco in 1923, are given in THE JOURNAL, April 3, 1926. That article contains the names of the members of the joint committee and gives a detailed account of the work of the committee and the Council on Medical

Education and Hospitals during the years 1923, 1924 and 1925. It contains a copy of the original questionnaire and the compilation of statistics on clinical laboratories gathered from all states of the Union by means of that questionnaire. Of special importance are the principles stated by the joint committee at that time—important because most of them still hold good, yet some of them would hardly be regarded as pertinent at the present time. The first provisional list was published in the report just referred to. Subsequent developments in the evolution of the list, and particularly the changes in the list itself, are reflected in the following references:

The second publication of the list appeared in THE JOURNAL, March 12, 1927, and contained 145 names; the list was next published in the Tenth Edition of the American Medical Directory in May, 1927, and contained 145 names; in THE JOURNAL, March 24, 1928, 160 names; March 30, 1929, 174 names; in the Eleventh Edition of the American Medical Directory, July, 1929, 175 names; in THE JOURNAL, March 29, 1930, 178 names; May 23, 1931, 183 names, and in the Twelfth Edition of the American Medical Directory, June, 1931, 183 names; in THE JOURNAL, Oct. 22, 1932, 538 names.

The following list in this issue contains 704 names.

ESSENTIALS FOR THE LISTING OF PHYSICIANS SPECIALIZING IN PATHOLOGY AND CLINICAL PATHOLOGY

Admission to the list is open to all physician-pathologists engaged in pathologic work in accordance with the "Essentials," whether connected with a hospital or not. The work of compiling a list of qualified pathologists according to these "Essentials" is done by the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

Definition.—A physician holding himself out as a specialist in pathology may be defined as follows: One who is a graduate in medicine having had satisfactory training and experience in pathology, chemistry, bacteriology or other allied subjects for at least three years subsequent to graduation, who is in good standing and has been duly licensed to practice medicine.

Qualifications.—(*a*) The pathologist shall be on a full or part time basis with a laboratory for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source and progress of disease in the human body. He should devote the major part of his time to work in this field.

(*b*) Pathology should be practiced on the same scientific and ethical basis, whether in the hospital or in a detached laboratory. The work represents the practice of medicine as in other specialties.

The pathologist may make diagnoses only when he is a licensed graduate of medicine, has had satisfactory training and experience in pathology for at least three years subsequent to graduation from medical college, is reasonably familiar with the manifestations of disease, and is competent to make reliable reports.

(*c*) Assistant: The pathologist may have a corps of qualified assistants and technicians, responsible to him, and for whom he is responsible, to carry out promptly, intelligently and accurately the several kinds of service the laboratory offers. All their reports, not only of tissues but also of all bacteriologic, hematologic, biochemical, serologic and pathologic data, should be made to the pathologist.

Scope.—A general pathologic laboratory should be prepared to render the following services:

(*a*) Hematologic: Blood counts, blood groupings and coagulation tests, and tests for blood parasites in general.

(*b*) Biochemical: Qualitative and quantitative analyses of urine, blood, gastric contents, body fluids, feces, intestinal contents and cerebrospinal fluids; renal and hepatic function tests and basal metabolism.

(*c*) Bacteriologic: Bacteriologic diagnoses; preparation of vaccines and blood and body fluid cultures.

(*d*) Serologic: Serologic diagnoses; agglutination, complement fixation, or precipitin and lysis tests.

(*e*) Pathologic: Preparation of paraffin, celloidin or frozen sections, microscopic and gross pathologic specimens and necropsies.

(*f*) Parasitologic: Protozoal and zoological diagnoses.

(*g*) Metabolic: Disorders of metabolism.

(*h*) Cardiologic: Disorders of the heart.

It is of course not expected that the candidate shall be prepared to render all the services mentioned, since the work must necessarily be diversified in larger laboratories and in smaller laboratories it is not always practical to have equipment and setups that would be used only occasionally. Since many pathologists limit their work to one branch of the specialty, referring certain items, far more efficiency is to be expected.

Reports.—Reports should be made solely to the physician in charge of the patient and should be signed by the pathologist. All blanks and reports should have the name of the director printed on them and, if of a diagnostic or prognostic character, the name of the staff physician also.

Records.—Full records of all examinations made by the pathologist, suitably indexed and filed, are essential. Every specimen analyzed in the laboratory should be given a serial number, which should follow that specimen in the records and reports. When the laboratory report concerns a hospital patient, an exact transcript of the laboratory record should be appended to the hospital case record. Each specimen submitted to the laboratory should be accompanied by pertinent clinical data.

Library.—The laboratory should be provided with, or have convenient access to, a library including current scientific books and journals on all the various subjects required in its work.

Fees.—There should be no dividing of fees or rebating between the laboratory or its pathologist and any physician, corporate body or group.

Publicity.—Publicity should be in professional good taste and be limited to statements of fact, as the name, address and telephone number of the laboratory; names and titles of the pathologist and other active responsible personnel; fields of work covered; office hours; directions for sending specimens, and the like, and should not contain misleading statements or claims of unusual superiority. It should not advocate medical fads nor lay undue stress on the importance of laboratory observations.

Only the names of those rendering regular service to the laboratory should appear on letterheads, or any

other form of publicity, as being connected with the laboratory.

Advertising matter should be directed only to physicians either through bulletins or through recognized technical journals, and never to the nonprofessional public, as, for example, by announcements in popular journals and periodicals, circulars, pamphlets, telephone lists or other means.

PHYSICIANS SPECIALIZING IN PATHOLOGY AND CLINICAL PATHOLOGY

The following list contains the names of 704 physicians specializing in pathology, laboratory diagnosis or clinical pathology, who returned the questionnaire, who were found to meet the "Essentials" and were recommended by the Council's advisers. Those engaged in teaching, research and other activities are admitted, as well as those in active practice. For the list of physicians specializing in pathology in government service, see page 1237.

ALABAMA

Birmingham
Graham, Geo. S. ..... 1023 S. 20th St.

Fairfield
Jones, Walter C. ....Tennessee Coal, Iron and Railroad Hospital

Montgomery
Trumper, Abraham ..... 201 Montgomery St.

ARIZONA

Phoenix
Mills, H. P. ..... 15 E. Monroe St.

Tucson
Hallinan, Edward Leo ..... 1826 E. Adams St.
Hicks, Robert Alan ..... 23 E. Ochoa St.

ARKANSAS

Hot Springs
Lee, Dee C. ..... 236 Central Ave.

Little Rock
Hoge, S. F. ..... 215 E. 6th St.
Thatcher, Harvey S. ..... 300 W. Markham St.

Pine Bluff
Pittman, Wm. G. ..... 202 Pine St.

CALIFORNIA

Berkeley
Reich, Wm. W. ..... 2490 Channing Way

Hollywood
Andrews, Vernon L. ..... 1322 N. Vermont Ave.

Loma Linda
Cutler, O. L. .....

Long Beach
Mikels, Benjamin M. ..... Seaside Hospital
Shackford, B. C. ..... 102 Pine Ave.

Los Angeles
Bettin, Mona E. ..... 727 W. 7th St.
Bonynge, Chas. W. ..... 1930 Wilshire Blvd.
Brem, Walter V. ..... 657 S. Westlake Ave.
Butt, Edward M. ..... 1930 Wilshire Blvd.
Evans, Newton ..... 1100 N. Mission Rd.
Hall, Ernest M. ..... 3551 University Ave.
Hammack, Roy W. ..... 657 S. Westlake Ave.
Hill, Robt. B. ..... 511 S. Bonnie Brae
Hyland, Clarence M. ..... 4614 Sunset Blvd.
Kimball, Theodore S. ..... 1100 Mission Rd.
Maner, Geo. D. ..... 657 S. Westlake Ave
Pratt, Orlyn B. ..... 312 N. Boyle Ave
Setzler, Geo. B. ..... 1052 W. 6th St.
Zeller, A. H. ..... 657 S. Westlake Ave.

Oakland
Glenn, Robt. A. ..... Samuel Merritt Hospital
Moore, Gertrude ..... 2404 Broadway
Michael, Paul ..... 434 30th St.

Pasadena
Burrows, Montrose T. ..... 94 N. Madison Ave.
Foord, Alvin G. ..... 749 Fairmont Ave.
Ruediger, Gustav F. ..... 65 N. Madison Ave.
Sturdivant, B. Frank ..... 600 S. Hudson Ave.

Pomona
Case, Lucius W. ..... 1798 N. Garey St.

Redlands
Taltavall, Wm. A. ..... 47 E. Vine St.

Sacramento
Braafladt, Louis H. ..... 1127, 11th St.
Christman, Paul Wm. ..... 1027, 10th St.

San Diego
Ball, Howard A. ..... Front and Dickenson Sts.
Elliott, Frances P. ..... 233 A St.
Pickard, Rawson J. ..... 520 E St.
Sumerlin, Harold S. ..... 2001, 4th Ave.
Thompson, Harold A. ..... 233 A St.

San Francisco
Bolin, Zera E. ..... 450 Sutter St.
Carr, Jesse L. ..... 15 Santa Paula Dr.
Lippman, Marion H. ..... 135 Stockton St.
McNaught, James B. ..... Clay and Webster Sts.
Oliver, Harry R. ..... 490 Post St.
O'Reilly, R. C. N. ..... 870 Market St.
Perry, Isabella Hester ..... 2d and Parnassus Ave.
Smith, Elmer Wm. ..... 2200 Hayes Ave.
Smith, Pearl M. ..... 3700 California St.
Stowe, W. Parker ..... St. Luke's Hospital
Victors, Ernst A. ..... 490 Post St.
Wyckoff, Harry A. ..... Clay and Webster Sts.

San Jose
Campbell, Lenore D. ..... 995 E. Santa Clara St.

Santa Ana
Martell, B. S. ..... 115 Owens Dr.

Santa Monica
Kosky, Alfred A. ..... 1250, 16th St.
McLean, Wm. J. ..... 958, 24th St.

Stockton
Holliger, Chas. D. ..... 242 N. Sutter St.

COLORADO

Colorado Springs
Ryder, Charles T. ..... 1626 Wood Ave.
Staines, M. Ethelyn ..... 23 E. Pikes Peak Ave.

Denver
Black, William C. ..... 4200 E. 9th Ave.
Carson, Paul C. ..... Presbyterian Hospital
Dobon, E. L. ..... 1818 Humboldt St.
Freshman, A. W. ..... 227, 16th St.
Guttman, Paul H. ..... 4200 E. 9th Ave.
Hillkowitz, Philip ..... 227, 16th St.
Jones, Rodney H. ..... 4200 E. 9th Ave.
Mugrage, Edward R. ..... 4200 E. 9th Ave.
Williams, Wm. W. ..... 209, 16th St.

Pueblo
Dunlop, J. N. ..... Corwin Hospital
Maynard, C. W. ..... 702 N. Main St.

Woodmen
Downing, Edgar D. .....

CONNECTICUT

Hartford
Allen, Wilmar M. ..... 20 S. Hudson St.
Hastings, Louis P. ..... 370 Collins St.
Kendall, Ralph E. ..... 20 S. Hudson St.

Middletown
Fisher, Jessie W. ..... 28 Crescent St.

New Britain
Loud, Norman W. ..... 92 Grand St.

New Haven
Bartlett, Chas. J. ..... 306 Orchard St.

Norwalk
Murray, Archibald ..... Norwalk General Hospital

Stamford
Weaver, Bruce S. ..... 77 South St.

DELAWARE

Wilmington
Bringman, Gladys H. ..... Wilmington General Hospital

DISTRICT OF COLUMBIA

Washington
Cajigas, Tomas ..... 1801 Eye St., N.W.
Choisser, Roger Morrison ..... 1335 H St., N.W.
Hansmann, G. H. ..... 3900 Reservoir Rd.
Keilty, Robert A. ..... 1801 Eye St., N.W.
Langenstrass, K. H. ..... St. Elizabeth Hospital
Lindsay, Janvier W. ..... 1726 Eye St., N.W.
Neuman, Lester ..... 1835 Eye St., N.W.
Rice, E. Clarence ..... 1726 Eye St., N.W.
Selinger, Maurice A. ..... 1726 Eye St., N.W.

FLORIDA

Jacksonville
Dyrenforth, L. Y. ..... 1022 Park St.
Kirk, Wm. W. ..... 308 Laura St.
Royce, Clayton E. ..... 1022 Park St.

Miami
Youmans, Iva C. ..... 653 S. W. 2d St.

Tampa
Mills, Herbert R. ..... 706 Franklin St.

GEORGIA

Atlanta
Ayers, A. J. ..... 384 Peachtree St.
Bishop, Everett L. ..... Steiner Cancer Clinic
Klugh, Geo. F. ..... 139 Forrest Ave., N. E.
Mestre, Ricardo ..... 580 Martine Dr.
Norris, Jack C. ..... 50 Armstrong St.

Augusta
Mosteller, Ralph ..... 1550 Walton Way
Pund, Edgar R. ..... Univ. of Ga., Med. Dept.

Emory University
Kracke, Roy R. ..... Wesley Memorial Hospital

ILLINOIS

Bloomington
Markowitz, Benj. ..... 219 N. Main St.

Chicago
Arkin, Aaron ..... 25 E. Washington St.
Benjamin, Eustace L. ..... 1103 Bryn Mawr Ave.
Croy, C. Churchill ..... 25 E. Washington St.
Davidsohn, Israel ..... 2750 W. 15th Pl.
Delaney, P. Arthur ..... 8114 Euclid Ave.
Fishback, Hamilton R. ..... 303 E. Chicago Ave.
Gardner, Stella M. ..... 30 N. Michigan Ave.
Hennemeyer, R. J. ..... 1305 E. 63d St.
Hill, Lewis R. ..... 1120 Leavitt St.
Hirsch, Edwin F. ..... 1439 S. Michigan Ave.
Howell, Katharine M. ..... 2839 Ellis Ave.
Jaffe, Richard H. ..... 533 Grant Pl.
Kearns, Jerry Joseph ..... 1458 Madison St.
Kremer, Rudolph J. ..... 541 Garfield Ave.
Levinson, Samuel A. ..... 1817 W. Polk St.
Lewis, Julian H. ..... 5200 Wabash Ave.
Lincoln, Mary C. ..... 30 N. Michigan Ave.
Matthies, M. M. ..... 33 N. Wabash Ave.
Melnick, Perry J. ..... Cook County Hospital
Moore, Josiah J. ..... 55 E. Washington St.
Murphy, Leonard J. ..... 4753 Broadway
Nicoll, H. K. ..... 122 S. Michigan Ave.
Petersen, A. S. J. ..... 45-67 W. 111th St.
Petersen, Wm. F. ..... 1817 W. Polk St.
Pilot, Isadore ..... 185 N. Wabash Ave.
Pribram, Ernest ..... 4458 Malden St.
Rukstinat, George J. .... Central Ave. and Flournoy St.
Saphir, Otto ..... 2839 Ellis Ave.
Simonds, James P. ..... 303 E. Chicago Ave.
Swan, Mary H. ..... 55 E. Washington St.
Sweany, Henry C. ..... 5601 N. Crawford Ave.
Thalhimer, Wm. ..... 2839 Ellis Ave.
Wells, H. Gideon. .... Dept. of Path., Univ. of Chicago

Evanston
Gunn, Francis D. ..... 2650 Ridge Ave.
Schultz, Oscar T. ..... 355 Ridge Ave.

Joliet
Wilson, W. Henry ..... 204 Scott St.

Moline
Vollmer, Maud J. ..... 1630 Fifth Ave.

Peoria
Bohrod, Milton G. ..... 108 Edgehill Ct.

Quincy
Cohen, Frank ..... 529 Hampshire St.

Rockford
Palmer, Harold D. ..... 507 Chestnut St.

Springfield
Bain, Walter G. ..... 8th and Mason Sts.

INDIANA

Bluffton
Nickel, Allen A. C. ..... Caylor-Nickel Clinic

Evansville
McGlumphy, Chas. B. ..... 614 Mary St.
Seitz, Chas. L. ..... 412 S. E. 4th St.

Fort Wayne
Rhamy, Bonnelle W. ..... 347 Berry St.

Indianapolis
Banks, Horace M. ..... 3631 Forest Manor Ave.
Forry, Frank ..... 4036 Capitol Ave
Langdon, Harry K. ..... 23 E. Ohio St.
Thornton, Harold C. ..... Indianapolis City Hospital

Lafayette
Hunter, Frank P. ..... 300 Main St.

NAME — ADDRESS

Muscle
Cole, Russell E.....2400 University Ave.

South Bend
Giordano, Alfred S.....531 N. Main St.
Lyon, Marcus W., Jr...122 N. Lafayette Blvd.

Terre Haute
Belsam, Etta.....221 S. 6th St.

IOWA

Cedar Rapids
Mulsow, Fredk. W.....120, 3d Ave., S. E.

Cherokee
Pope, John M.....

Clinton
Boyer, Edward E. H.....114, 32d Ave., N.

Davenport
Lamb, Frederick H.....220 Main St.

Dubuque
McNamara, Frank P.....1596 Delhi St.

Iowa City
Herrmann, Walter W.....University of Iowa

Ottumwa
Hecker, Friedrich A.....130 E. Maple Ave.

Sioux City
Starry, Allen C.....21st and Court Sts.

KANSAS

Kansas City
Wahl, Harry R...39th St. and Rainbow Blvd.

Salina
Moses, Howard N.....100 S. Santa Fe St.

Topeka
Lattimore, John L.....901 Kansas Ave.

Wichita
Hellwig, C. Alexander....928 N. Emporia Ave.

KENTUCKY

Lexington
Maxwell, Elmer S.....190 N. Upper St.

Louisville
Allen, John D.....608 S. 4th St.
McNeill, Clyde.....321 W. Broadway
Miller, Aura J.....323 E. Chestnut St.
Weeter, Harry M.....332 W. Broadway

LOUISIANA

Lake Charles
Hebert, Louis A.....834 Ryan St.

Monroe
Pracher, John.....301 Jackson St.

New Orleans
Friedrichs, Andrew V.....921 Canal St.
Johns, Foster M.....927 Canal St.
Lanford, John A.....3516 Prytania St.
Lawson, Edwin H.....2700 Napoleon Ave.
Maher, Aldea.....228 St. Charles St.

Shreveport
Butler, Willis P.....341 Margaret Pl.
Ellis, Fredk. G.....624 Travis St.

MAINE

Bangor
Thompson, H. E.....250 State St.

Lewiston
Bellveau, Romeo A.....89 Pine St.
Gottlieb, Julius.....384 Main St.

Portland
Long, Alfred G.....60 Leland St.
Warren, Mortimer.....22 Arsenal St.

MARYLAND

Baltimore
Collenberg, Henry T.....2 W. Read St.
Gichner, Manuel G.....2426 Eutaw Pl.
Maldeis, Howard J.....104 W. Madison St.
Spencer, Hugh R.....University of Maryland

MASSACHUSETTS

Boston
Belding, David L.....80 E. Concord St.
Branch, Chas. F.....80 E. Concord St.
Burnett, Francis L.....205 Beacon St.
Davies, Andrew H.....195 Pilgrim Rd.
Hinton, Wm. A.....25 Bennet St.
Hooker, Sanford B.....80 E. Concord St.
Leary, Olga Cushing.....43 Bay State Rd.
Leary, Timothy.....43 Bay State Rd.
Mallory, Tracy B.....
.....Massachusetts General Hospital
Oatis, J. Edwin.....30 Huntington Ave.
Rooney, James Stewart.....1153 Center St.
Schlesinger, Monroe J....330 Brookline Ave.
Steele, Albert E.....475 Commonwealth Ave.
Ulrich, Helmuth.....30 Huntington Ave.
Warren, Shields.....195 Pilgrim Rd.

Bradford
Bartlett, Bernice A.....11 Haseltine St.

Fall River
Peasley, Elmus D.....1820 Highland Ave
Walsh, James H.....538 Prospect St.

New Bedford
Wason, Isabel Mary.....146 Cottage St.

Newton
Dalrymple, S. C.....2014 Washington St.

Pittsfield
Criscitiello, Modestino.....8 Bank Row

Springfield
Dwyer, John E.....146 Chestnut St.

Westboro
Pierce, Lydia B.....

Worcester
Elliott, William J.....119 Belmont St.
Freeman, William.....Box 489
Goodale, Raymond H.....71 Jacques St.
Looney, Joseph M....Worcester State Hospital

MICHIGAN

Ann Arbor
Bugher, John C.....106 Pleasant Pl.
Gordon, Harold.....200 N. State St.
Howard, S. C.....326 N. Ingalls St.
Weller, C. V...Dept. of Path., Univ. of Mich.

Battle Creek
Roth, Paul.....Battle Creek Sanitarium

Bay City
Gamble, Wm. G., Jr...16th and Franklin Sts.

Detroit
Amolsch, Arthur L.....Detroit Coll. of Med.
Brines, Osborne A....2201 E. Jefferson Ave.
Clark, Harry L.....5057 Woodward Ave.
Cope, Henry E.....1551 Woodward Ave.
Davis, James E.....1512 St. Antoine St.
Hartman, Frank W.....2799 W. Grand Blvd.
Morse, Flinn F.....3825 Brush St.
Oginsky, M. A.....226 Hancock Ave., E.
Owen, Clarence I.....4160 John R St.
Owen, R. G.....1551 Woodward Ave.
Stafford, Frank W.....33 W. Vernor Highway

Grand Rapids
Bond, Geo. L.....74 Ionia Ave., N. W.
German, Wm. M...Blodgett Memorial Hospital
Miller, Margaret A.....Butterworth Hospital

Grosse Pointe
Gruhzit, O. M.....580 Hampton Rd.

Kalamazoo
Prentice, Hazel R.....3404 Oakland Dr.

Saginaw
Lohr, Oliver W.....302 S. Jefferson St.

MINNESOTA

Duluth
Berdez, George Louis.....St. Mary's Hospital

Minneapolis
Baker, Looe.....1111 Nicollet Ave.
Drake, Charles R.....900 Nicollet Ave.
Grave, Floyd.....823 Nicollet Ave.
Lufkin, Nathaniel H.....
.....424 W. Diamond Lake Rd.
Merrell, Geo. L.....823 Nicollet Ave.
Smith, Margaret L.....2627 Chicago Ave.

Rochester
Beaver, Donald C.....Mayo Clinic
Broders, A. C.....Mayo Clinic
Kernohan, J. W.....Mayo Clinic
MacCarty, Wm. C.....Mayo Clinic
Magath, Thos. B.....Mayo Clinic
Robertson, H. E.....Mayo Clinic
Rosenow, E. C.....Mayo Clinic
Sanford, Arthur H.....Mayo Clinic
Wellbrock, Wm. L. A.....Mayo Clinic
Wilson, Louis B.....Mayo Clinic

St. Cloud
Stangl, Fred H.....101 7th Ave., S.

St. Paul
Ikeda, Kano.....125 W. College Ave.
Noble, John Franklin.....Ancker Hospital

MISSISSIPPI

Greenville
White, E. T.....301½ Washington Ave.

Vicksburg
Lippincott, Leon S.....920 Crawford St.

MISSOURI

Columbia
Neal, M. Pinson.....1309 Bouchelle Ave.

Kansas City
Duncan, Ralph Emerson.....306 E. 12th St.
Hall, Frank J.....306 E. 12th St.
Helwig, Ferdinand C.....St. Luke's Hospital
Johnson, Emsley T.....St. Joseph Hospital
Koritschoner, Robt.....4949 Rockhill Rd.
Narr, Frederick C.....Research Hospital
Stewart, Edward L.....1115 Grand Ave.
Trimble, Wm. K.....1103 Grand Ave.

St. Louis
Allen, Hollis N.....631 N. Grand Blvd.
Buhman, Rudolph.....539 N. Grand Blvd.
Gradwohl, R. B. H.....3514 Lucas Ave.
Harris, D. L.....508 N. Grand Blvd.
Ives, Geo.....3720 Washington Blvd.
Klenk, Chas. L.....508 N. Grand Blvd.
McCordock, Howard A.....Washington Univ.
Schery, Chas. Wm.....1426 Carroll St.
Thompson, Ralph L.....607 N. Grand Blvd.
Walsh, L. S. Newman.....5535 Delmar Blvd.

Springfield
Dahlstrom, Arthur Wm.....200 Pershing St.
Stone, Murray C.....200 E. Pershing St.

MONTANA

Butte
Peterson, Raymond F.....57 W. Quartz St.

Great Falls
Hitchcock, E. D.....Great Falls Clinic
Walker, Thos. F.....503, 1st Ave., N.

NEBRASKA

Omaha
Eggers, Harold E.....Univ. of Nebr.
Manning, E. T.....107 S. 17th St.
Moody, W. B.....206 S. 19th St.
Rubnitz, A. S.....107 S. 17th St.
Russum, B. Carl.....306 N. 14th St.
Tollman, James P.....42nd and Dewey Ave.

NEVADA

Reno
Parsons, Lawrence.....235 W. 6th St.

NEW HAMPSHIRE

Hanover
Miller, Ralph E.....9 Downing Rd.

NEW JERSEY

Asbury Park
de Pons, Isabel S. C.....501 Grand Ave.
Pons, C. A.....501 Grand Ave.

Atlantic City
Kilduffe, Robt. A.....26 S. Ohio Ave.

Bayonne
Antopol, Wm.....Bayonne Hospital

Elizabeth
Casilli, A. R.....618 Newark Ave.

Englewood
Halpern, Herman.....143 Engle St.

Greystone Park
Christian, Thos. B.....

Jersey City
Alter, Nicholas M.....410 Fairmount Ave.

Newark
Brown, Lewis W.....15 Fulton St.
Echikson, Joseph I.....845 S. 12th St.
Goldberg, Samuel A.....27 S. 9th St.
Gray, John W.....142 Clinton Ave
Yaguda, Asher.....201 Lyons Ave.

Orange
Cline, Benj. F.....264 Central Ave.

Paterson
Kim, Gay B.....763 Main St.

Plainfield
Borow, Louis S.....934 Park Ave.

Teaneck
Markley, Luther A.....Holy Name Hospital

Toms River
Halbach, Robert M.....513 Main St.

Trenton
Rogers, Wm. N.....1255 Brunswick Ave.

NEW MEXICO

Albuquerque
Van Atta, J. R.....221 W. Central Ave.

NEW YORK

Albany
Gilbert, Ruth.....116 N. Allen St.
Horner, Henrietta Calhoun...171 S. Main Ave.
Jacobsen, V. C.....Albany Med. Coll.
Klinck, Gustavus B.....Albany Med. Coll.
Wright, A. W.....136 S. Lake Ave.

Binghamton
Bergstrom, V. W.....21 Park Ave.
Gregory, Hugh S.....Binghamton State Hosp.

Brooklyn
Black, F. A.....32 Court St.
Derby, Irving Marsh.....681 Clarkson Ave.
Fein, M. J.....142 Joralemon St.
Fink, Harold.....6423, 19th Ave.
Goldzieher, Max A.....4820, 14th Ave.
Grainick, Abraham.....119 Sumner Ave.
Greeley, Horace.....140 Clinton St.
Kantrowitz, Abraham R.....55 Winthrop St.
Lederer, Max.....555 Prospect Pl.

NAME ADDRESS

Marten, M. Edward.....515 Ocean Ave.
Moltrier, Wm., Jr.....1219 Dean St.
Morrison, Maurice.....250 Ocean Pkwy.
Nidish, Edward H.....1272 Bergen St.
Pelayes, Silik R.....425 Prospect Pl.

Buffalo
Bentz, Charles A....126 W. Humboldt Pkwy.
Hanan, Ernest B.....462 Grider St.
Jacobs, William F.....408 Richmond Ave.
Vaughan, Stuart L.....100 High St.
Warwick, Margaret.....875 Lafayette Ave.
Williams, Herbert U.....24 High St.

Central Islip
Trygstad, Beldar.....Central Islip State Hosp.

Clifton Springs
Thomas, Walter S.....42 Kendall St.

Corning
Shafer, Rudolph J.....163 E. 1st St.

Cortland
Wall, Wm. A.....134 Homer Ave.

Elmira
Bleyer, Leo F.....555 E. Market St.
Stuart, Anna M.....656 Park Pl.

Glens Falls
Maslon, Morris.....191 Glen St.

Ithaca
Hauenstein, B. F.....
.....Tompkins Co. Memorial Hospital

Jamaica
Buxbaum, Edward J.....8711, 150th St.
Campbell, N. H. M.....89-18, 139th St.
Werne, Jacob.....89-04, 148th St.

Kings Park
Priestman, Gordon.....

Little Rock
Van Nostrand, Hobart S.....
.....45-06 Little Neck Pkwy.

Long Island City
Angrist, Alfred.....43-42, 45th St.
Malis, Wm. W.....30-20, 29th St.

Middletown
Kelly, Wm. E.....
.....Middletown State Homeopathic Hosp.

Newark
Baumgartner, E. A.....Newark State School

Newburgh
Wescott, A. M.....231 Liberty St.

New Rochelle
Brooks, Henry T.....35 Woodland Ave.
McIlroy, P. T.....421 Huguenot St.

New York
Aronson, Wm.....150 E. 182d St.
Brown, Chester R.....150 W. 87th St.
Cocheu, Lindsley F.....205 E. 69th St.
Curphey, Theodore J.....115 E. 61st St.
Darlington, Charles G.....75 E. 55th St.
Dolgopol, Vera B.....131 W. 110th St.
Donnet, J. Victor.....152 W. 58th St.
DuBois, Phebe L.....150 E. 73d St.
Eggston, Andrew A.....653 Park Ave.
Ehrlich, Joseph C.....155 E. 91st St.
Kiser, Wm. J.....525 E. 68th St.
Felsen, Joseph.....667 Madison Ave.
Foot, Nathan Chandler.....325 E. 68th St.
Fraser, Alexander.....338 E. 26th St.
Frosch, Herman L.....1882 Grand Concourse
Geiger, Jacob.....25 Central Park West
Gonzales, Thomas A.....56 E. 87th St.
Grauer, Frank.....226 W. 71st St.
Hadjopoulos, L. G.....6 E. 78th St.
Heitzmann, Louis.....38 W. 90th St.
Hillman, Oliver S.....140 E. 54th St.
Hochman, Charles H..2715 Grand Concourse
Jeffries, Ferdinand M.....18 E. 41st St.
Jessup, D. S. D.....621 W. 113th St.
Kaliski, David J.....70 E. 83d St.
Klemperer, Paul.....385 Central Park West
Kopel, Moses.....1454 Grand Concourse
Larimore, L. D.....729 Riverside Dr.
MacNeal, W. J.....303 E. 20th St.
Manheims, Perry J.....27 W. 96th St.
McNeil, Archibald.....18 E. 41st St.
Olcott, Charles T.....1300 York Ave.
Pincus, Julius.....250 W. 75th St.
Price, Aaron S.....335 W. 56th St.
Rohdenburg, G. L.....111 E. 76th St.
Rosenthal, Nathan.....51 E. 90th St.
Rous, Peyton.....
..Rockefeller Institute for Medical Research
Rubinstein, Morris.....600 W. 181st St.
Saccone, Andrea.....334 E. 116th St.
St. George, Arnaln.....460 E. 29th St.
Seecof, David P.....1970 Daly Ave.
Shuster, Mitchell.....30 E. 40th St.
Smith, Lawrence W..Willard Parker Hospital
Sondern, Frederic E.....20 W. 55th St.
Sophian, L. H.....428 W. 59th St.
Stillman, Ralph G.....525 E. 68th St.
Taub, Jacob.....1428 Taylor Ave.
Thro, William C.....69th St. and York Ave.
Weiss, M. Arthur.....235 W. 76th St.
Whitcher, Burr R.....365 E. 29th St.

NAME ADDRESS

Ossining
Gosline, Harold I.....199 Spring St.

Ozone Park
DeVeer, J. Arnold.....101-32 97th St.

Poughkeepsie
Carpenter, H. P...Hudson River State Hospital
Peckham, A. L.....Vassar Brothers Hosp.

Rochester
Brown, Herbert R.....224 Alexander St.
Gáspár, István.....501 W. Main St.
Hawkins, William B.....200 Crittenden Blvd.
Kennedy, Robert P.....176 S. Goodman St.
Lindsay, Saml. T.....909 W. Main St.
O'Grady, Geo. W.....277 Alexander St.

Rye
Loder, M. M.....

Saranac Lake
Gardner, L. U.....7 Church St.

Schenectady
Kellert, Ellis.....Ellis Hospital

Syracuse
Ferguson, John H.....309 S. McBride St.
Welshotten, H. G.....309 S. McBride St.

Troy
Curry, A. Hazel.....Ford and Fonda Aves.
Curtis, Stephen H.....41, 114th St.

Utica
Gallagher, C. D.....1676 Sunset Ave.
Russell, Clarence L.....1125 Court St.

Valhalla
Dalldorf, Gilbert J.....Grasslands Hospital
Russell, Hollis K.....Grasslands Hospital
Springer, Joyce M.....Grasslands Hospital

Watertown
Walker, Thomas T.....832 Washington St.

Westfield
Field, Cyrus W.....88 N. Portage St.

Woodside
Stanford, Addie D.....4321 56th St.

Yonkers
Cook, Ward H.....
.....Dept. of Public Health, City Hall

NORTH CAROLINA

Chapel Hill
Bullitt, James B.....

Charlotte
Barret, Harvey P.....403 N. Tryon St.
Todd, Lester C.....403 N. Tryon St.

Durham
Byrnes, Thomas H.....Watts Hospital

Wake Forest
Carpenter, C. C.....

NORTH DAKOTA

Bismarck
Larson, L. W.....221, 5th St.

Grand Forks
Salki, A. K.....Univ. of N. Dak. Med. Sch.

OHIO

Akron
Potter, Frederick C.....256 W. Cedar St.

Cincinnati
Faller, Albert.....19 W. 7th St.
Herzberg, Mortimer.....3261 Burnet Ave.
Zeek, Pearl M...Burnet Ave. and Goodman St.

Cleveland
Karsner, Howard T.....2085 Adelbert Rd.
Kline, Benjamin S.....1800 E. 105th St.

Columbus
Coons, J. J.....370 E. Town St.
Fidler, Roswell S.....700 N. Park St.
Hoffman, Ralph W.....1542 W. 1st Ave.
Reinhart, Harry L.....975 Dennison Ave.
Scott, Ernest.....Ohio State University
Shilling, Ellis Ray.....345 E. State St.

Dayton
Payne, Foy C.....201 S. Main St.
Simpson, Walter M.....134 Apple St.

Dover
Shaweker, Max.....Reeves Bank Bldg.

Elyria
Rosenzweig, Maurice.....630 E. River St.

Lorain
Donaldson, John B.....700 Broadway

Springfield
Jones, Clement L.....8 W. Main St.

Toledo
Hindman, S. S.....316 Michigan St.
Ramsey, Thomas L.....225 Michigan St.
Rucker, James B., Jr.....630 W. Central Ave
Schade, August H.....320 Michigan St.
Steinberg, Bernhard.....Toledo Hospital
Zbinden, Theodore.....706 Madison Ave.

NAME ADDRESS

Youngstown
Kramer, G. B.....Youngstown Hospital

OKLAHOMA

Bartlesville
Chamberlin, E. M.....329 S. Johnstone Ave.

El Reno
Muzzy, Wm. J.....620 E. Wade St.

Muskogee
Wilkiemeyer, Fred J.....2128 W. Broadway

Oklahoma City
Bailey, Wm. H.....300 W. 12th St.
Hill, Joseph M....Univ. of Okla. Sch. of Med.
Jeter, Hugh G.....1200 N. Walker St.

Tulsa
Hartgraves, Thos. A.....1653 E. 12th St.
Nelson, I. A.....100 W. 6th St.
Venable, Sidney C.....420 S. Main St.

OREGON

Eugene
Furrer, Emil D.....130 E. Broadway

Portland
Foskett, H. H.....410 Taylor St.
Hunter, Warren C..Univ. of Oregon Med. Sch.
Lawrence, H. J.....322 Alder St.
Manlove, Chas. H....2266 Marshall St., N. W.
Menne, Frank R...Univ. of Oregon Med. Sch.

PENNSYLVANIA

Abington
Elman, John.....York and Woodland Rds.

Allentown
Milstead, L. C.....4th and Chew Sts.
Wenner, John J.....941 Hamilton St.
Williams, Helen L...Allentown State Hospital

Altoona
Brumbaugh, A. S.....1312, 11th St.

Ardmore
Belk, William P.....Times Med. Bldg.

Chester
Sickel, Geo. B.....525 Welsh St.

Danville
Hunt, Henry F.....

Easton
Gaines, Carl.....130 N. 3d St.
Zillessen F. O.....21st and Lehigh Sts.

Erie
Armstrong, E. L.....3d and State Sts.

Gettysburg
Stewart, Henry.....

Grooesburg
Mayhew, J. Morgan.....532 W. Pittsburgh St.

Harrisburg
Van Horn, Herman H.....
.....3d St. and Polyclinic Ave.
Moffitt, George R.....Harrisburg Hospital

Huntingdon
Reiners, Charles R.....741 Washington St.

Johnstown
McCloskey, B. J.....1020 Franklin St.

Kingston
Daley, D. F.....214 Chestnut St.
Wenner, Thos. J.....562 Wyoming Ave.

Mayview
Wiseman, John L.....

McKeesport
Sandblad, A. G.....1701 Union St.

New Brighton
McLaren, Harold J.....541, 11th Ave.

Norristown
Laubach, Charles A..Norristown State Hospital
Simpson, John C.....920 Swede St.

Philadelphia
Asnis, Eugene J.....1524 Chestnut St.
Barthmaier, O. F.....2303 W. Lehigh Ave.
Bauer, John T.....8th and Spruce Sts.
Beck, James S. P..University of Pennsylvania
Becker, Carl Emil.....2341 N. College Ave.
Brown, Claude P.....1930 Chestnut St.
Bucher, Carl Joseph....15th and Spruce Sts.
Case, Eugene Allen.....1918 Lombard St.
Clark, J. H.....1417 W. Erie Ave.
Corson-White, E. P.....1820 Pine St.
Crawford, Baxter L....10th and Sansom Sts.
de Rivas, Damaso.....1831 Chestnut St.
Fowler, Kenneth.....Presbyterian Hospital
Fox, Herbert...Pepper Laboratory, Univ of Pa.
Gault, Edwin S.....
.....Temple University Sch. of Med.
Ginsburg, Gershon.....1936 N. 7th St.
Hastings, W. S.....Hasbrook and Hartel Sts.
Hopp, George A.....20th and Chestnut Sts.
Konzelmann, F. W....Broad and Ontario Sts.
Krumbhaar, E. B...Univ. of Pa. Sch. of Med.
Lucké, Balduin...University of Pennsylvania
Lynch, Frank B., Jr.....6028 Columbia Ave.

NAME	ADDRESS
McFarland, Joseph	
	McManes Laboratory, Univ. of Pa.
Meranze, David R.	1429 S. 5th St.
Moon, V. H.	Jefferson Med. Coll. and Hospital
Rees, William T.	3763 N. 19th St.
Reimann, S. P.	Lankenau Hospital
Richardson, Russell	320 S. 16th St.
Rose, S. Brandt	4035 Chestnut St.
St. John, E. Quintard	1833 Chestnut St.
Spaeth, William L. C.	5000 Jackson St.
Stewart, Harold L.	
	Jefferson Med. Coll. and Hospital
Tuft, Louis	1530 Locust St.
Pittsburgh	
Baker, Moses H.	121 University Pl.
Bruecken, A. J.	St. Francis Hospital
Cohen, Mortimer	
	Univ. of Pittsburgh Med. Sch.
Grauer, Robert C.	2001 Murray Ave.
Hamilton, Robt. C.	Reed and Roberts Sts.
Haythorn, Samuel R.	210 E. Park Way, N. S.
Joyce, Francis W.	4001 California Ave.
Lacy, George Rufus	
	Univ. of Pittsburgh Med. Sch.
McClellan, Robt. H.	265, 46th St.
Mellon, Ralph R.	401 S. Murtland Ave
Moyer, Ray P.	1821 Portland St.
Permar, Howard H.	Pride and Locust Sts.
Rockman, Jacob	2117 Carson St.
Ross, Elizabeth	5230 Centre Ave.
Semsroth, Kurt	4800 Friendship Ave.
Wallhauser, Andrew	641 Gettysburg St.
Willetts, Ernest W.	429 Penn Ave.
Yardumian, K.	Montefiore Hospital
Pottsville	
Moll, Francis K.	309 Manhantongo St.
Reading	
Elton, Norman W.	2004 Steuben Rd.
Funk, Erwin Deaterly	Reading Hospital
Sayre	
DeWan, Chas. H.	
Scranton	
Clark, Geo. A.	129 Washington Ave.
Cooper, Harold B.	633 E. Market St.
Sharon	
Hartman, Geo. O.	740 E. State St.
Uniontown	
Heise, Herman A.	400 Berkley St.
Warren	
Eaton, H. C.	Warren State Hospital
West Chester	
Hollingsworth, I. P. P.	411 N. Walnut St.
Wilkes-Barre	
Janjigian, R. R.	River and Auburn Sts.
York	
Jamieson, Howard M.	
	S. George St. and Rathton Rd.
RHODE ISLAND	
Howard	
Crank, Rawser P.	
	State Hospital for Mental Diseases
Pawtucket	
Kenney, John F.	206 Broadway
Providence	
Clarke, B. Earl	593 Eddy St.
Hamilton, James	349 Hope St.
Schradieck, C. E.	825 Chalkstone Ave.
SOUTH CAROLINA	
Charleston	
Johnson, Francis B.	16 Lucas St.
Lynch, Kenneth M.	6 Lucas St.

NAME	ADDRESS
Columbia	
Plowden, Henry H.	2020 Hampton St.
Smith, Herbert M.	State Office Bldg.
Greenville	
Wilson, Thos. R. W.	109 Memminger St.
SOUTH DAKOTA	
Vermillion	
Ohlmacher, Joseph C.	309 Lewis St.
TENNESSEE	
Chattanooga	
Crowell, Tolbert C.	544 McCallie Ave.
Knoxville	
DePue, Ray V.	601 Walnut St.
Monger, Ralph H.	603 W. Main Ave.
Memphis	
Leake, Nolan E.	999 Madison Ave.
McIntosh, J. A. Jr.	264 Jackson Ave.
Schmittou, L. V.	130 Madison Ave.
Nashville	
Jones Robt. L.	706 Church St.
Litterer, J. H.	706 Church St.
TEXAS	
Austin	
Bohls, Sidney W	410 E. 5th St.
Graham, Geo. M.	110 W. 7th St.
Jackson, J. Warren	110 W. 7th St.
Beaumont	
Lewis, Seaborn J.	398 Pearl St.
Williford, H. B.	595 Orleans St.
Dallas	
Bell, Marvin D.	1719 Pacific Ave.
Black J. Harvey	1719 Pacific Ave.
Brandes, W. W.	3301 Junius St.
Caldwell, Geo. T.	Baylor Univ. Coll. of Med.
Carter, Chas. E.	1719 Pacific Ave.
Goforth, John L.	3121 Bryan St.
Sanders, C. B.	Oak Lawn and Maple Aves.
Wallace, Stuart A.	3300 Junius St.
El Paso	
Turner, Geo.	109 N. Oregon St.
Waite, Willis W.	114 Mills St.
Fort Worth	
Hulsey, Slm.	600 W. 10th St.
Owen, May	600 W. 10th St.
Terrell, Truman C.	600 W. 10th St.
Galveston	
Brindley, Paul	900 Avenue B
Marr, William L.	900 Avenue B
Houston	
Braden, Albert H.	1910 Crawford St.
Braun, Harry E.	Jefferson Davis Hospital
Wood, Martha A.	1215 Walker Ave.
Jacksonville	
Sory, Wm. H.	Nan Travis Memorial Hospital
San Antonio	
Moore, John M.	705 E. Houston St.
Scott, Raymond E.	705 E. Houston St.
Stout, Beecher F.	705 E. Houston St.
Temple	
Phillips, Charles	1302 N. 5th St.
Robinson, James E.	304 S. 22d St.
Wichita Falls	
Glover, Milton H.	900, 8th St.
Venable, Douglas R.	2010 Garfield St.
UTAH	
Salt Lake City	
Flood, Thos. A.	8 E. 3d South St.
Ogilvie, O. A.	50 E. South Temple St.

NAME	ADDRESS
VERMONT	
Burlington	
Buttles, Ernest H.	Mary Fletcher Hospital
VIRGINIA	
Norfolk	
Roche, Mary E.	229 Bute St.
Richmond	
Beck, Regena C.	1103 W. Franklin St.
Budd, Saml. W.	1000 W. Grace St.
WASHINGTON	
Seattle	
Cefalu, Victor	509 Olive St.
Magnusson, G. A.	509 Olive St.
Nickson, D. H.	803 Summit Ave.
West, P. C.	509 Olive St.
Spokane	
Edgar, James D.	715 W. 4th Ave.
Patton, Frank R.	407 Riverside Ave.
Patton, Mathew M.	407 Riverside Ave.
Stier, Robt. F. E.	407 Riverside Ave.
Tacoma	
Martin, Dale L.	315 S. K St.
McColl, Charles R.	1812 S. Eye St.
WEST VIRGINIA	
Bluefield	
Grant, Margaret S.	1710 Bland St.
Sinclair, M. W.	204 Ramsey St.
Clarksburg	
Cherry S. L.	315 S. Chestnut St.
Huntington	
Hodges, Frank C.	955, 4th Ave.
Morgantown	
Fenton, C. C.	West Virginia Univ.
WISCONSIN	
Eau Claire	
Scullard, Garner	1421 State St.
Madison	
Bayley, William E.	1300 University Ave.
Bunting, C. H.	426 N. Charter St.
McGary, Lester	925 Mound St.
Pessin, S. B.	720 S. Brooks St.
Stovall, Wm. D.	Service Memorial Institute
Milwaukee	
Enzer, Norbert	425 E. Wisconsin Ave.
Fernan-Nunez, Marcos	561 N. 15th St.
Grill, John	561 N. 15th St.
Oesterlin, Ernest J.	2200 W. Kilbourn Ave.
Seelman, John J.	295 E. Wisconsin Ave.
Tharinger, E. L.	231 W. Wisconsin Ave.
CANAL ZONE	
Ancon	
Bates, Lewis B.	Gorgas Hospital
HAWAII	
Honolulu	
Fennel, Eric A.	
	The Clinic, Young St. at Thomas Sq.
Larsen, Nils P.	Queen's Hospital
Kolea	
Ecklund, Archibald M.	
PUERTO RICO	
San Juan	
Costa-Mandry, Oscar	Department of Health

PHYSICIANS SPECIALIZING IN PATHOLOGY IN GOVERNMENT SERVICE

UNITED STATES ARMY

NAME	ADDRESS
Ash, J. Earle, Maj.	Sternberg General Hospital, Manila, P. I.
Bibb, Lewis B., Maj.	Letterman General Hospital, San Francisco
Callender, George R., Maj.	Station Hospital, Fort Sam Houston, Texas
Cornell, Virgil H., Maj.	% Surgeon General, Washington, D. C.
Dart, Raymond O., Maj.	Army Medical Museum, Washington, D. C.
DeCoursey, Elbert, Maj.	Gorgas Hospital, Ancon, Canal Zone
Paliid, J. Vincent, Maj.	Walter Reed General Hospital, Washington, D. C.
Gentzkow, C. J., Maj.	Army Medical School, Washington, D. C.
Grant, Brooks Collins, Maj.	Station Hospital, Fort Sam Houston, Texas
Kimberger, Albert G., Maj.	Station Hospital, Fort Benning, Ga.
McNabb, P. E., Maj.	Army Medical Museum, Washington, D. C.
Sinclair, Charles G., Maj.	39 Whitehall St., New York City
Tasker, A. N., Lt. Col.	Station Hospital, Fort McPherson, Ga.
Thomas, Alfred B., Jr., Maj.	% Adjutant General, Washington, D. C.

UNITED STATES NAVY

NAME	ADDRESS
Behrens, Charles F., Lt.	U. S. Naval Hospital, Newport, R. I.
Bennett, John T., Lt. Comdr.	Norfolk Naval Hospital, Portsmouth, Va.
Butler, Charles S., Capt.	U. S. Naval Hospital, Brooklyn N. Y.
Cooper, George F., Lt.	
	Bureau of Medicine and Surgery, Navy Dept., Washington, D. C.
Dowling, George B., Lt. Comdr.	U. S. Marine Barracks, Quantico, Va.
Houghton, James E., Lt. Comdr.	4817, 36th St., N.W., Washington, D. C.
McCants, John M., Lt. Comdr.	Norfolk Naval Hospital, Portsmouth, Va.
Moloney, James B., Lt. Comdr.	U. S. Naval Hospital, Mare Island, Calif.
Ragle, Harold E., Lt. Comdr.	U. S. Fleet Air Base, Pearl Harbor, T. H.
Rohow, Fred M., Lt.	U. S. Naval Medical School, Washington, D. C.
Satterlee, Richard C., Lt. Comdr.	U. S. S. Utah, San Pedro, Calif.

UNITED STATES PUBLIC HEALTH SERVICE

NAME	ADDRESS
Fitzsimmons, Charles E.	U. S. Marine Hospital, San Francisco, Calif.
Harmon, Oscar	U. S. Marine Hospital, Norfolk, Va.
Lillie, R. D.	National Institute of Health, Washington, D. C.
Taylor, Ewing	U. S. Marine Hospital, Staten Island, N. Y.

VETERANS ADMINISTRATION

NAME	ADDRESS
Blumberg, Alfred	Veterans Administration Facility, Oteen, N. C.
Carhart, William G.	Veterans Administration Facility Whipple, Ariz.
Fulwider, Robert M.	Veterans Administration Facility, Fort Lyon, Colo.
Latta Jefferson B.	Veterans Administration Facility, Fort Bayard, N. Mex.
Lederer, Arthur	Veterans Administration Facility, Jefferson Barracks, Mo.
Matz, Philip B.	
	Research Subdivision, Medical and Hospital Service, Veterans Administration, Washington, D. C.
Nolan, Lewis E.	Veterans Administration Facility, Minneapolis, Minn.
Schelm, Geo. W.	Veterans Administration Facility, North Chicago, Ill.
Smith, Wm. Adams	Veterans Administration Facility, Indianapolis, Ind.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, OCTOBER 14, 1933

VOLATILE POISONS IN THE AMERICAN HOME

Modern chemical industry in its many branches contributes greatly to the comforts and even luxuries of life. At the same time it introduces new hazards to health and even to life. While these hazards arise primarily in industry and can there be minimized by adequate precautions, safety supervision and compensation for injuries, they now invade nearly every American home; and in the home there is little protection and no compensation for injuries. New solvents for cleaning purposes, new forms of paint, new refrigerants for gas and electrical refrigerators, new drugs, new textiles to imitate silk and other fabrics, and new materials for a wide variety of other uses are already generally introduced. More are appearing constantly to improve or replace the materials formerly used. Some of these materials appear to be entirely harmless; others are distinctly poisonous. This defect, however, should not prevent their use for proper purposes with adequate precautions. Their advantages must be retained. Knowledge must serve as a protection from their perils.

Among the substances that have marked toxic qualities, various volatile liquids are especially important both in their convenience for household use and in their risks to health. The fatalities that resulted from methyl chloride poisoning in Chicago apartment houses, where this gas escaped from refrigerators, are still fresh in the public mind. Benzene is not only a factory hazard but when used in asphalt paint on hot metal in an unventilated place may induce illness or death. Methanol in varnish may cause blindness. The only protection for the public against this risk at present is a gentleman's agreement among the more public spirited manufacturers not to yield to the temptation of cheapening production by using methanol in varnish. A nationwide disaster with a probability of hundreds of poisonings was barely averted a few years ago when the sale to the public at gasoline filling stations of concentrated tetra-ethyl lead was replaced by the relatively safe ethyl gas, in which the lead is already mixed before distribution. In regard to refrigerators the choice of safety or danger seems to depend less on what particular refrigerant is used than on the quantity. In single unit installations the amount is small. In multiple installations, particularly in apartment houses, the amount is large; and the whole of it may escape into a single apartment when a leak occurs. One of these refrigerants, the new dichlorodifluoromethane, is practically nontoxic;[1] yet when stored in large amounts in the basement to supply many refrigerators from a single tank and compressor it might produce a veritable war gas wave in case of fire to overwhelm the firemen.[2] Safety seems now to require that such substances be used only in single units of household size.

One of the most widely used volatile liquids is carbon tetrachloride. For purposes of dry cleaning this liquid has the great advantage over many other solvents of grease in that it is noninflammable. Fire risks, and therefore fire insurance rates, for plants using carbon tetrachloride are much less than when such inflammable liquids as naphtha or gasoline are used. As "carbona," carbon tetrachloride goes into the home chiefly to remove grease spots. Its use has aided to diminish the injuries and deaths from burns that formerly resulted from the household use of such inflammable cleaning fluids as naphtha. The public is, however, generally quite unaware that carbon tetrachloride is a powerful anesthetic and nearly as toxic as chloroform. Butsch[3] has recently reported a case in which a man who was employed to clean telephones with this substance has apparently suffered irreparable damage to the liver. Cases have also been reported from Switzerland of illness from a floor wax liquefied with carbon tetrachloride and used in school rooms.[4] There have been many cases of partial poisoning from nearly every use of this substance by persons who appreciated its advantages but were unaware of the precautions necessary against its dangers. With reasonable care, most of these uses would be quite safe; the danger results from ignorance and lack of warning regarding the poisonous properties of carbon tetrachloride and from the fact that the substance is generally sold for household use not under its scientific name but under such trade names as "carbona" and "pyrene."

When carbon tetrachloride is used to extinguish fires in closed spaces, the results may be disastrous. The New York *Times* for July 7, 1922, reported a fire in the subway on which "pyrene" was used with the result that 150 persons were overcome by the fumes. In adjoining columns of the *Times* a statement from the

1. Sayers, R. R.; Yant, W. P.; Chornyak, John, and Shoaf, H. W.: Toxicity of Dichlorodifluoromethane, a New Refrigerant, Report of Investigations 3013, Bureau of Mines, 1930.

2. Report on Dichlorodifluoromethane, National Board of Fire Underwriters, Oct. 10, 1931. Williams, E. T., and Kenlon, J.: A Brief Before the Fire Department of the City of New York Board of Hazardous Trades in the Matter of "Freon," Dichlorodifluoromethane.

3. Butsch, W. L.: Cirrhosis of the Liver Caused by Carbon Tetrachloride, J. A. M. A. **99**: 728 (Aug. 27) 1932.

4. Henggeler, A.: Serious Poisoning with Carbon Tetrachloride, Schweiz. med. Wchnschr. **61**: 223 (March 7) 1931; abstr. J. A. M. A. **96**: 1917 (May 30) 1931.

Chemical Warfare Service of the United States Army set forth the well known fact that carbon tetrachloride is like chloroform in that when the liquid is sprayed on a fire, or its vapor is mixed with flame, it produces phosgene, one of the most deadly of war gases. From the subway fire no deaths resulted; but in the United States Navy at the Portsmouth Navy Yard in 1919 two men died from the fumes produced when the clothing of one caught fire and was extinguished with "pyrene."

Experience has demonstrated that carbon tetrachloride has excellent fire-extinguishing properties. "Pyrene" in the small fire extinguishers often carried in automobiles has saved many a car from destruction and its owner from injury by explosion of gasoline vapor. In the open air the danger from poisoning is small; but as the result of an investigation of this subject in the Bureau of Mines [5] the conclusion was reached that carbon tetrachloride should not be used for this purpose in confined spaces. Accordingly, under the influence of that bureau the use of carbon tetrachloride in mines has been generally stopped. Unfortunately the American home is not so well protected, as carbon tetrachloride fire extinguishers are sold to the public for use in homes with no statement on the label of the containers as to the conditions under which their use is dangerous.

Of such dangers from well known toxic substances that go into the modern American home it would be easy to make an extensive list. But even more important is the risk from new substances the toxic qualities of which are as yet undefined by experience or investigation. At the last session of Congress a bill [6] was introduced in the United States Senate to require truthful labeling of volatile substances sold through interstate trade for household use. After a preliminary hearing before a committee of the Senate this bill was referred to the surgeon general of the Public Health Service for study, possibly for enlargement into a general poisons bill, and then for report back to the committee of the Senate. It is needed in regard not only to carbon tetrachloride and other substances of known toxicology but also to forestall the poisoning of the people in their homes by new substances of unknown toxicology. It should provide for investigation under government auspices of the toxic hazards of new substances before they are sold under some misleading trade name to an uninformed and as yet unprotected public.

5. Fieldner, A. C.; Katz, S. H., and Kinney, S. P.: Gas Masks for Gases Met in Fighting Fires, Technical paper 248, Bureau of Mines, March, 1921, pp. 18-20 and 38-43. Fieldner, A. C.; Katz, S. H.; Kinney, S. P., and Longfellow, E. S.: Poisonous Gases from Carbon Tetrachloride Fire Extinguishers, J. Franklin Institute **190:** 543 (July-Dec.) 1920. Gases Produced in the Use of Carbon Tetrachloride and Foamite Fire Extinguishers in Mines, Report of Investigations 2262, Bureau of Mines.

6. Senate bill 3853, Seventy-Second Congress, first session, introduced by Senator Bingham and referred to the Committee on Agriculture and Forestry, the act to be cited as the "Federal Volatile Poison Act." Volatile Poisons: Hearing before the Committee on Agriculture and Forestry, United States Senate, on S. 3853, A Bill to Regulate Interstate and Foreign Commerce in Poisonous Volatile Substances Intended for Household Consumption, April 19, 1932, Washington, Government Printing Office, 1932.

PRESBYOPIA AND THE DURATION OF LIFE

Presbyopia has long been recognized as a condition that attacks human beings beyond middle age and gradually increases until the age of 60 years, after which it is likely to remain stationary. This recession of near point for vision is considered a normal process in the life cycle of the tissues of the eye. It is apparently associated with a change in the tissue of the lens in the direction of increased hardness and lessened elasticity. Because of this inability of the lens to stretch or relax in response to the demand for accommodation, the ability to see printed matter or objects held close to the eye is decreased.

Not long ago Steinhaus [1] developed the conception that a definite relationship exists between aging of the lens of the eye and aging of the body in general. He pointed out that Kronfeld had previously demonstrated that the energy requirements of the lens are the same as those of the erythrocytes. In spite of the peculiarities of the tissues of the eye, they seem to be governed by the same laws that control other tissues. The lens of the eye of a child is so elastic that it can readily assume any shape necessary for accommodation to vision at various distances. In near vision, extreme curving is necessary. As the human being becomes older, the tissues tend to lose their elasticity, as is visible in the case not only of the lens of the eye but also of the skin. The gradual hardening process that takes place with increasing age is a general process affecting all the tissues. When it affects the lens of the eye, the power of accommodation is impaired so that the near point for vision gradually moves farther away from the eye. Steinhaus was convinced that aging of the lens and of the body tissues generally continued in a parallel manner, and that by this means the degree of presbyopia found in any individual might be taken as an indication of life expectancy.

After propounding this theory, Steinhaus studied the records of the Leipzig clinic for diseases of the eye for the period from 1880 to 1908, and also for the years 1929 and 1930. For each year of persons over 40 years of age a presbyopic average was determined, and tabular statements were developed indicating the presbyopic averages expressed in diopters. In comparing with this average the degree of presbyopia in the different patients, he detected persons in whom the presbyopia was less than average, average and above the average. The tables seems to show that there is a relationship between the degree of presbyopia and the life expectancy. In persons in whom the presbyopia is less than average, life expectancy is much greater than in those in whom presbyopia is above the average. In persons between the ages of 40 and 50 the difference is as much as ten years in favor of the persons with a less than

1. Steinhaus, Heinz: Relation of Presbyopia and Duration of Life, with Consideration of Causes of Death, Arch. f. Augenh. **105:** 731 (May) 1932.

average presbyopia. A sifting of the material according to causes of death showed a more noticeable relationship between presbyopia and duration of life in persons who died a natural death, for in these cases the aging process is the most important cause of death. As the sclerosis of the eye lens is an indicator for the advancement of the aging process in the vital organs, it is thus also an indicator of the life expectancy. From this Steinhaus concludes that the determination of presbyopia may be of value in the examination of applicants for life insurance. A classification of the material according to the sexes revealed that the presbyopic averages are the same in men and in women. The fact that women, as is generally known, have a higher life expectancy is not due to a lesser degree of aging but to other causes, such as their mode of life, which is generally quieter than that of men. The presbyopic averages of the material of 1929-1930 were found higher than those of the years 1880-1908, but the author thinks that this is due to changes in the method of prescription of glasses rather than in actual changes. For differences in the process of aging between urban and rural populations, between the different social classes and between different races there are some indications, but these were not definite.

Most of our means of determining changes in the elasticity of the blood vessels and of various other tissues of the body are clinical methods seldom permitting exact measurement. On the other hand, the methods of refraction that determine with remarkable exactness the relative elasticity of the lens may be considered a highly scientific and accurate means of measurement. If, therefore, the concept of Steinhaus is more definitely established by the accumulation of a considerable number of observations on large numbers of people, a simple means for aiding in determining life expectancy will be easily available.

Current Comment

LYMPHATIC BLOCKADE

The tendency of staphylococci to remain localized in infected areas and the usual spread of streptococci to surrounding tissues are well known clinical phenomena. Superficially, this suggests a relatively low virulence or toxicity for the staphylococcus, and a relatively high pathogenicity or invasive potential for the streptococcus. A quite different interpretation, however, is suggested by Menkin[1] of Harvard Medical School, who emphasizes differences in local tissue drainage. The Harvard investigator found that aleuronat and certain other injected irritants are usually fixed in local tissues, largely as a result of a mechanical blockade of the regional lymphatics. This blockade is caused by intraluminal plasma coagulation and the later formation of leukocytic plugs. Trypan blue injected into the inflamed area is retained in the local tissues, while similar injections are rapidly drained from noninflamed control areas. Applying the same local drainage test to bacterial infections, he found in rabbits an effective regional lymphatic blockade within one hour after the subcutaneous injection of staphylococci. An equally effective regional blockade required at least forty-five hours with streptococci. Pneumococci occupied an intermediary position, effective regional blockade being established in about six hours. "Inasmuch as staphylococci, pneumococci, and streptococci spread from the site of cutaneous inoculation primarily through lymphatic channels," he says, "the difference in rapidity with which mechanical obstruction is set up in the areas inflamed by them will help to explain the differing invasive abilities of these pyogenic organisms."

1. Menkin, Valy: J. Exper. Med. **57**: 977 (June) 1933.

THE WHITE BLOOD CELL COUNT

Scarcely a day passes in the lives of many physicians when they are not concerned with the "white blood cell count" of some patient. To base a diagnosis of disease on an aberration in the number of circulating leukocytes calls for dependable knowledge of normal conditions. Without this, rational judgments as to what constitute abnormal changes or pathologic signs cannot be formed. Just as the clinician takes into account the diurnal variations in body temperature when he uses the clinical thermometer, so the "rhythms" in white cell counts need to be considered if they are, indeed, physiologic realities. An "afternoon rise" has been described as an actual phenomenon, in contrast to some other variations now attributed to errors in technic. Reference was made some time ago in THE JOURNAL[1] to the conclusion that so-called digestive leukocytosis has been wrongly ascribed to alimentary causes. It was argued that physical or even mental exertion is the most conspicuous reason for these normal fluctuations in the increased numbers of white blood cells so often recorded after meals. Garrey[2] of Vanderbilt University at Nashville, who championed these views, contended that a count above 7,000 per cubic millimeter is evidence of mental or physical unrest and that all "basal counts" lie between the limits 5,000 and 7,000. Extensive investigations[3] at the Washington Square College of New York University do not support this view but tend to indicate that mild activity has no constant effect on the count, although, as is well known, severe exercise may cause the number of leukocytes to rise to three or four times the normal figure. In persons at rest, counts between 4,700 and 11,500 were obtained, while the counts during activity varied between 3,500 and 11,500. The counts taken during activity were not uniformly higher than those obtained during complete rest, and just as frequently the two counts were substantially the same, or the count during activity was lower than that during complete rest.

1. An Explanation of Digestive Leukocytosis, Current Comment, J. A. M. A. **72**: 1004 (April 5) 1919.
2. Garrey, W. E., and Butler, Virginia: Am. J. Physiol. **100**: 351 (April) 1932.
3. Ponder, Eric; Saslow, George, and Schweizer, Malvina: Quart. J. Exper. Physiol. **21**: 21, 1932. Schweizer, Malvina: The "Basal Level" of the White Cell Count in Man, Am. J. Physiol. **105**: 217 (July) 1933.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday mornings from 8:55 to 9 o'clock, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

October 17. How to Care for the Heart.
October 19. Parents' Responsibility in Disease Control.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

October 21. The Battle of the Children.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. John J. Miller, Jr., who has been conducting research in whooping cough at the Statens Serum Institut, Copenhagen, for the past year, will collaborate with Dr. Albert P. Krueger in a similar investigation at the University of California, Berkeley.

Changes at University of California.—Dr. Herman M. Adler, professor of psychiatry, University of California Medical School, San Francisco, will have the additional title of lecturer in jurisprudence during the present academic year. New appointments include those of Drs. Charles Weiss as associate professor of research medicine at the Hooper Foundation for Medical Research and Paul A. Gliebe as assistant clinical professor of neuropsychiatry in the medical school.

Outbreaks of Food Poisoning.—Four outbreaks of food poisoning were recorded during July, according to the *Weekly Bulletin* of the California Department of Public Health. One involved chocolate éclairs and another custard-filled cake. Staphylococcic infection was responsible for both of these outbreaks. In both of them the product had been shipped to another town from the locality where it was manufactured. Eighteen cases of food poisoning occurred in a camp of young women. The fourth outbreak involved nine cases in a labor camp. Because of a shortage of ice in extremely hot weather, foodstuffs were not cared for properly. In both these outbreaks the suspected food products were not available for laboratory study and the exact cause could not be determined.

COLORADO

Dr. Hall Honored.—Dr. Josiah N. Hall, Denver, was given a dinner, September 18, by the Medical Society of the County of Denver, in recognition of his completion of fifty years in the practice of medicine in Colorado. There were 210 guests and the evening was concluded with the unveiling of a portrait of Dr. Hall. The portrait, by Waldo Love, will be placed in the society's library. Dr. Robert Levy was toastmaster. The speakers included Drs. Hubert Work, former secretary of the interior, Leonard Freeman, John W. Amesse and George M. Blickensderfer. Dr. Hall, who is emeritus professor of medicine, University of Colorado School of Medicine, was president of the Colorado State Board of Medical Examiners in 1891, the state board of health in 1903-1904, the American Therapeutic Society in 1916-1917, and the Colorado State Medical Society in 1900. He was mayor of Sterling in 1888-1889. In addition to articles on diseases of the heart and lungs he is the author of Borderline Diseases and the section on gunshot wounds, burns and scalds in Peterson and Haines' Text-Book of Legal Medicine and Toxicology. He served as a member of the Judicial Council of the American Medical Association from June, 1921, to June, 1931; was a member of the House of Delegates in 1903, and was again appointed in 1906, serving until 1908 and from 1919 to 1921.

DELAWARE

Society News.—At a meeting of the New Castle County Medical Society, Wilmington, September 19, Dr. Edward S. Dillon, Philadelphia, spoke on the reduction of mortality in diabetes. Dr. Thomas B. Holloway, Philadelphia, addressed the society, October 17, on exophthalmos and its significance.

State Medical Election.—At the annual meeting of the Medical Society of Delaware, September 26, Dr. Joseph S. McDaniel, Dover, was elected president; Dr. William H. Speer, Wilmington, secretary, and Dr. Alfred L. Heck, Wilmington, treasurer, all to take office in January. The next annual session will be held in Dover, Oct. 9-10, 1934.

DISTRICT OF COLUMBIA

Tumor Registry.—A committee has been appointed by Dr. Prentiss Willson, president, Medical Society of the District of Columbia, to supervise a tumor registry recently established in the society's building. Maintenance of the registry was authorized by the society, May 3. Dr. Janvier W. Lindsay was named chairman to serve three years. Other members are the following physicians:

Walter J. Freeman, three years.
Matthew White Perry, three years.
James A. Cahill, Jr., two years.
Edmund Horgan, two years.
Claude Moore, two years.
Frank J. Eichenlaub, one year.
Vincent J. Dardinski, one year.
Harrison H. Leffler, one year.

GEORGIA

Society News.—Speakers before the Ninth District Medical Society, September 20, were Drs. Grady N. Coker, Canton, on "Rare Findings in the Surgical Abdomen," and Daniel C. Elkin, Atlanta, "Treatment of Aneurysm."——Dr. Horace G. Huey, Homerville, presented case reports before the Ware County Medical Society, September 6, on pernicious anemia, epithelioma of the forehead, aortic dilatation and pyloric stenosis.

Department of Bacteriology Established.—A department of bacteriology has been established at the University of Georgia Medical Department. According to the *Journal of the Medical Association of Georgia*, the faculty of the department will include James A. Kennedy, Ph.D., University of Rochester (N. Y.) School of Medicine; Dr. Ferdinand C. Lee, Johns Hopkins Hospital, Baltimore; James O. Pinkston, Harvard Medical School, Boston, and Dr. Marion S. Dooley, Syracuse University College of Medicine, Syracuse, N. Y.

IDAHO

State Medical Election.—At the annual meeting of the Idaho State Medical Association in Twin Falls, September 18-19, Dr. Charles R. Scott, Twin Falls, was named president-elect, to take office January 1. Dr. John S. Springer, Boise, will assume the presidency, January 1. The next annual session will be held in Lewiston in 1934. The following scientific program was presented at the meeting:

Dr. Alan L. Hart, Tacoma, Wash., Tuberculin Testing and X-Raying of Chests of School Children.
Dr. Harry E. Kleinschmidt, New York, Finding Tuberculosis in School Children.
Dr. George W. Pierce, San Francisco, Practical Application of Reconstruction Surgery and Rational Treatment of Cleft Lip and Cleft Palate.
Dr. Claude F. Dixon, Rochester, Minn., Goiter and Surgery of the Colon.
Dr. Dean Lewis, Baltimore, President, American Medical Association, Tumors of the Breast and Fractures and Associated Injuries.
Dr. Martin B. Tinker, Ithaca, N. Y., Goiter, Diagnosis and Permanence of Cure.
Dr. Alfred W. Adson, Rochester, Minn., Value of "Sympathectomy" in the Treatment of Cord Bladder and Hirschsprung's Disease; Brain Tumor; Diagnosis and Operability.
Dr. Harlow Brooks, New York, The Heart in Influenza.
Dr. Platt W. Covington, Salt Lake City, field representative, Rockefeller Foundation, State Board of Health Organization.
Dr. Alson R. Kilgore, San Francisco, Breast Cancer, Acceptable and Debatable Procedures; A State Medical Society Cancer Organization.

ILLINOIS

County Society Programs on Infectious Diseases.—The Illinois State Health Department will institute a series of scientific programs for county medical societies at a meeting of the Fulton County Medical Society in Canton, October 18, as part of a campaign against epidemic diseases. Four illustrated lectures covering encephalitis, infantile paralysis, influenza, pneumonia, diphtheria, scarlet fever and other epidemic diseases will be presented at each meeting by staff members of the health department. Lectures have also been scheduled for meetings in Charleston, Champaign, Danville, Marion, East St. Louis and Quincy.

Chicago

Special Annual Lectures.—Dr. Hugh H. Young, clinical professor of urology, Johns Hopkins University School of Medicine, Baltimore, will present the fifth annual William T. Belfield Lecture before the Chicago Urological Society at the Palmer House, October 18. His subject will be "Diagnosis and Treatment of Prostatic Obstruction." A dinner will be held in honor of Dr. Young preceding the meeting, and his friends and those interested in urology are cordially invited.——Dr. George Minot, professor of medicine, Harvard Medical School, Boston, will deliver the first Jessie Horton Koessler Lecture of the Institute of Medicine of Chicago, October 23, on "Anemia, Etiology and Treatment." The meeting will be held jointly with the Chicago Society of Internal Medicine at the Chicago Woman's Club.——Dr. Alfred Blalock, associate professor of surgery, Vanderbilt University School of Medicine, Nashville, will give the fifth annual Arthur Dean Bevan Lecture of the Chicago Surgical Society at the Chicago Woman's Club, October 20. His subject will be "Acute Circulatory Failure as Exemplified by Shock and Hemorrhage."

MAINE

Tumor Clinic.—The Maine General Hospital has established a tumor clinic, to be held every Thursday. A 50-cent charge will be made to those able to pay. Physicians throughout the state or elsewhere are requested to refer their patients for diagnosis and advice or treatment. It is hoped to make the clinic self supporting.

MASSACHUSETTS

Anniversary Celebration at Harvard.—The one hundred and fiftieth anniversary of Harvard Medical School was observed, October 6-7. The medical school was opened, Oct. 7, 1783, with the induction into office of Dr. John Warren as professor of anatomy and surgery, and Dr. Benjamin Waterhouse as professor of the theory and practice of physic, and the exercises were arranged to celebrate that event. The anniversary ceremony began, October 6, with a program at the medical school on Longwood Avenue and three of its affiliated hospitals: Massachusetts General, Boston City Hospital and Peter Bent Brigham. At a formal program held in Cambridge, October 7, the original exercises of 1783 were repeated in part, including reading of the original inaugural orations of Professors Warren and Waterhouse, and the psalms sung 150 years ago. Dr. Warren's oration was read by Dr. J. Lewis Bremer, Hersey professor of anatomy, and that of Dr. Waterhouse by Dr. Henry A. Christian, Hersey professor of the theory and practice of physic. These chairs are the two oldest endowed professorships in the medical school. Following the establishment of the first two professorships in medicine at Harvard in 1783, instruction was given in Holden Chapel until 1810, when classes were transferred to Boston. The first medical school building was erected in 1816. From 1882 to 1906 the school occupied the building at the corner of Boylston and Exeter streets, now used by Boston University. The group of white marble buildings on Longwood Avenue was completed in 1906, and Vanderbilt Hall, the dormitory for medical school students, in 1927. In 1788, the university conferred its first medical degree on two students, and, in 1933, 131 degrees. The present teaching staff numbers more than 130.

MICHIGAN

Dinner to Dr. Chadwick.—The personnel of the Detroit Department of Health gave a farewell dinner, September 15, to Dr. Henry D. Chadwick, who has resigned as controller of tuberculosis to become state health commissioner of Massachusetts. Dr. William A. Evans presided at the dinner and Henry F. Vaughan, Dr.P.H., was the principal speaker. John F. Norton, Ph.D., also received a tribute at the dinner. He resigned from the health department to become laboratory director of the Upjohn Chemical Company, Kalamazoo.

Society News.—Dr. Hugo A. Freund addressed the West Side Medical Society, Detroit, October 5, on "Diseases of the Coronary Arteries."——Dr. George C. Leckie, Detroit, addressed the Lambton County Medical Society in Sarnia, September 13, on roentgen studies of the urinary tract.——Dr. Charles E. Boys, Kalamazoo, addressed the physicians of Manistee, Lake and Oceana counties, September 21, at a meeting sponsored by the Mason County Medical Society; he spoke on goiter.——Dr. Raymond W. Waggoner, Ann Arbor, spoke on epidemic encephalitis before the Washtenaw County Medical Society, October 10.

Dr. Novy Appointed Dean at Michigan.—Dr. Frederick G. Novy was appointed dean of the University of Michigan Medical School, Ann Arbor, September 22. In the past, Dr. Novy has been chairman of the executive committee of the school, which includes also Drs. Udo J. Wile, James D. Bruce, Harley A. Haynes and Arthur C. Curtis. He will continue in this capacity while also holding the deanship. Dr. Novy received his medical degree at the University of Michigan Medical School in 1891. He became associated with his alma mater in 1886 as assistant in organic chemistry and has been professor of bacteriology and director of the Hygienic Laboratory since 1902. His completion of forty-seven years on the faculty of the university was observed in May, when the Genesee County Medical Society gave him a testimonial dinner. The medical school has not had a dean since Dr. Hugh Cabot's resignation in 1930.

MINNESOTA

Personal.—Dr. William J. Mayo, Rochester, has recently been made a foreign associate member of the Paris Academy of Medicine.

Society News.—Dr. Axcel C. Baker, Fergus Falls, was elected president of the Northern Minnesota Medical Association at its recent annual meeting in Willmar. Other officers are Drs. Julian F. Dubois, Sauk Center, and Oscar O. Larsen, Detroit Lakes, vice president and secretary, respectively. The next annual convention will be held at Thief River Falls.——The prize essay of the Minnesota Academy of Medicine by John Chaplin Barton was read at the meeting, October 11; the title is "The Distribution of Intranuclear Inclusion Bodies Primarily Involving Vascular Endothelium." Mr. Barton will be a candidate for the degree of doctor of medicine at the University of Minnesota School of Medicine, Minneapolis, in 1934. Dr. Bertram S. Adams, Hibbing, presented a thesis on "Gallbladder Disease."

MISSOURI

Tuberculosis Conference.—The tuberculosis division of the St. Louis Health Department will conduct its second annual clinical conference, October 23-November 6 and November 13-27. Clinical demonstrations in the diagnosis of early tuberculosis will be presented at the tuberculosis division of Isolation Hospital and Koch Hospital. The course will be practical and free of charge. Registration will close, October 15. Physicians wishing to attend should communicate with Dr. Hyman I. Spector, 35 Municipal Courts Building, St. Louis.

NEBRASKA

Society News.—Drs. Charles W. Mayo and Jacob Arnold Bargen, Rochester, Minn., addressed the Elkhorn Valley Medical Society, Norfolk, August 25, on "Medical and Surgical Management of Malignant Lesions of the Descending Colon and Sigmoid"; Drs. Ralph H. Luikart and Arthur D. Dunn, Omaha, "Indications for Interference in Obstetrics" and "Position of Decapsulation of the Kidney in Urinary Suppression," respectively. Dr. Dexter D. King, York, was elected president.——Dr. Benjamin J. Clawson, Minneapolis, addressed the Omaha-Douglas County Medical Society, Omaha, September 26, on "Pathogenesis of Acute Rheumatic Fever."

NEW JERSEY

Society News.—Henry F. Vaughan, Dr.P.H., health commissioner of Detroit, addressed a special meeting of the Medical Society of New Jersey at Newark, October 3, on the Detroit plan for medical participation in public health work.——The eastern section of the American Sanatorium Association held a meeting at Lakeland Sanatorium, October 6-7. Among speakers were Drs. Louis H. Clerf, Philadelphia, on "Bronchoscopy in the Treatment of Pulmonary Abscess and Bronchiectasis"; Ronald V. Christie, Montreal, Que., "Physiological Readjustments to Pneumothorax," and Frederick M. Allen, New York, "Insulin in Tuberculosis Treatment."——Dr. Ross V. Patterson, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, October 13, on "Coronary Thrombosis with Special Reference to Its Differentiation from Abdominal Surgical Conditions."

NEW YORK

District Meetings.—The annual meeting of the eighth district branch of the Medical Society of the State of New York was held at the Cataract House, Niagara Falls, October 5. At the morning session Dr. Charles H. Goodrich, Brooklyn, spoke on medical economics, and Drs. Ivan Hekiman and Henry E. Vogel, Buffalo, presented a study of diabetic deaths.

At the afternoon session Drs. Joseph C. Bloodgood, Baltimore, and E. Ellice McDonald, Philadelphia, spoke on cancer.——At the annual meeting of the third district branch of the Medical Society of the State of New York, Haines Falls, September 5, speakers for the scientific session were Drs. Edward M. Livingston, New York, on "Interpretation of Abdominal Signs and Symptoms"; Gilbert Horrax, Boston, "Certain Forms of Increased Intracranial Pressure and Their Treatment" and Samuel T. Orton, New York, "Some Varieties of Delayed Speech in Children."——At the annual meeting of the fourth district branch of the Medical Society of the State of New York in Malone, September 19, speakers included Drs. Philip D. Wilson and Frank H. Lahey, Boston, on "Fractures and Dislocations of the Elbow" and "Diagnosis and Management of Goiter," respectively, and John H. Wyckoff, Jr., New York, "Present-Day Evolution of Medicine."

New York City

Personal.—Dr. William J. Fordrung, Scarsdale, has been appointed head of the department of physiology and hygiene at Hunter College.——Dr. Thomas Darlington, health commissioner of New York from 1904 to 1910, celebrated his seventy-fifth birthday, September 24.

Hospital News.—Dr. John E. Daugherty has been appointed superintendent of Jamaica Hospital, Richmond Hill.—— An alumni association of interns of Fifth Avenue Hospital was formed, September 27, with Dr. Eric R. Skoluda as president. ——Midtown Hospital has recently organized a dermatologic service with Dr. Jerome Kingsbury as director.

Patients for Study at Rockefeller Institute.—The Hospital of the Rockefeller Institute for Medical Research announces that the following diseases will be made the subject of special investigation during the coming winter: acute respiratory diseases, chickenpox, measles, rheumatic fever, heart disease, nephritis, anemia (aplastic, idiopathic pernicious or severe microcytic), sprue, severe glossitis or stomatitis without anemia and a limited number of cases of epidemic encephalitis. Suitable patients may be referred to the hospital by physicians and others willing to cooperate. No charge is made for any services. Physicians should communicate by telephone or in person with the resident physician before sending patients.

Memorials to Pioneer Diphtheria Investigators.—The twentieth anniversary of the introduction of diphtheria antitoxin into the United States and of the Schick test will be celebrated as part of the children's health fetes to be held as the climax of the immunization campaign now in progress in Bronx and Queens counties. Memorials signed by thousands of immunized children in the two boroughs will be presented to Dr. William H. Park, director of the bureau of laboratories of the New York City Department of Health, the pioneer in the use of antitoxin in this country, and to Dr. Béla Schick, who developed the test by which immunity may be demonstrated. It is hoped to reach about 80,000 unimmunized children during the present campaign.

OHIO

Conference of Health Officers.—The fourteenth annual conference of health officers of Ohio will be held in Columbus, October 19-20. Among speakers will be Drs. John H. J. Upham, Columbus, chairman, Board of Trustees, American Medical Association, on "Postgraduate Work in Public Health"; Edward S. Godfrey, Jr., of the New York State Department of Health, Albany, "Modern State Health Regulations," and Mr. William R. Foss, state representative from Mercer County, "What Is Wrong with Our Present Health Laws."

Illegal Practitioner Fined.—Frank E. McCartney, Cleveland, is reported to have been fined $200 and costs and sentenced to serve sixty days in the workhouse on a charge of manufacturing water for use as a medicine and $300 and costs on a charge of practicing medicine after trial in police court, September 1. It appears that the man, who was listed in the city directory as a physician—which he is not—had given electrical treatments to a woman and sold her five gallons of "McCartney's Electrified Water" for $10. Analysis of the water is reported to have shown that it was ordinary Lake Erie water. McCartney was released on $1,000 bond pending motion for a new trial.

Memorial Meeting.—An all day conference on tuberculosis will be held at State Sanatorium, Mount Vernon, October 18, as a memorial to Dr. Charles O. Probst. Dr. Herbert M. Platter, Columbus, Mr. James E. Bauman, assistant state director of health, and Mr. W. H. Dittoe, sanitary engineer of the Mahoning Valley district, will summarize Dr. Probst's work in public health. Medical aspects of tuberculosis will be discussed by Drs. Charles A. Doan and Bruce K. Wiseman, Columbus, and surgical aspects by Dr. George M. Curtis, Columbus. Dr. Probst, who died, April 2, was for twenty-five years secretary of the state board of health and served as president of the American Public Health Association, Ohio Society for the Prevention of Tuberculosis and the Conference of State and Provincial Boards of Health.

Society News.—A symposium on epidemic (lethargic) encephalitis was presented at the first fall meeting of the Columbus Academy of Medicine, September 18, by Drs. John H. Hayes, Edson J. Emerick and Roswell S. Fidler.—— Dr. George I. Nelson, Columbus, addressed the Greene County Medical Society, Xenia, September 15, on cardiovascular diseases.——Drs. Edward J. McCormack and Thomas L. Ramsey, Toledo, addressed the Seneca County Medical Society, Tiffin, September 21, on medical ethics and medical history, respectively.——Dr. Fred M. Douglass, Toledo, addressed a meeting of the Marion County Academy of Medicine, September 5, on "Management and Treatment of Biliary Infection."—— Dr. George M. Curtis, Columbus, was guest speaker at the first fall meeting of the Mahoning County Medical Society, Youngstown, September 19, on "Significance of the Iodine Content of Human Blood."——Dr. Walter G. Stern, Cleveland, addressed the Summit County Medical Society, Akron, October 3, on "The Doctor in Court."

OKLAHOMA

Society News.—Dr. Edward A. Abernathy, Altus, among others, addressed the Western Oklahoma Medical Society, September 19, on "Acute and Suppurative Otitis Media and Its Complication."—— The Grayson County (Texas) Medical Society held a joint meeting with the Marshall County Medical Society at Durant, September 12; speakers included Drs. David C. Enloe and Arthur Gleckler, Sherman, Texas, on "Treatment of Empyema" and "Treatment of Mental Cases in the Home," respectively.—— Drs. Carroll M. Pounders and William M. Taylor, Oklahoma City, addressed the quarterly meeting of the Canadian County Medical Society, El Reno, September 18, on "The Child Who Is Susceptible to Colds" and "Nutritional Disturbances in Early Life," respectively. Physicians of Blaine, Custer and Kingfisher counties were guests at the meeting.

PENNSYLVANIA

Society News.—Dr. Howard K. Petry, Torrence, spoke on mental health before the Fayette County Medical Society, October 5, in Uniontown. Drs. Roy R. Snowden and Waid E. Carson, Pittsburgh, addressed the society, September 7, on "Recent Advances in Knowledge of Nephritis" and "Changes in the Eye in Diseases of the Kidneys," respectively, and Dr. Jean V. Cooke, St. Louis, discussed the encephalitis epidemic.——Dr. Oliver H. Perry Pepper, Philadelphia, addressed the Berks County Medical Society, Reading, September 12, on blood dyscrasias.——Dr. Damon B. Pfeiffer, Philadelphia, addressed the Lehigh County Medical Society, Allentown, September 12, on "Cancer of the Intestines, Rectum and Colon."

Philadelphia

Society News.—The first autumn program of the Philadelphia County Medical Society, October 11, was devoted to mental hygiene; Dr. Charles W. Burr gave an address on "What Is a Good Environment?" and Dr. Edward A. Strecker, "Mental Hygiene and the General Practitioner."—Speakers at the first meeting of the Philadelphia Academy of Surgery, October 2, were Drs. Charles H. Frazier and William H. M. Erb, on "The Superior Laryngeal Nerve and the Superior Pole in the Thyroidectomies" and Maxwell Cherner, "Etiology of Indirect Inguinal Hernia."——A symposium on prenatal care was presented before the Obstetrical Society of Philadelphia, October 5, by Drs. Robert M. Shirey, Edward A. Schumann, Joseph V. Missett, Jr., Frances S. Dunne and Samuel M. Stern.

TENNESSEE

Personal.—Dr. Ross L. Gauld, Johnson City, has been appointed health officer of Maury County to succeed Dr. Hainan C. Busby, Columbia, who has gone to Johns Hopkins University for a year's study of public health under an award from the Rockefeller Foundation.——Dr. Waller S. Leathers, Nashville, was elected chairman of the new state public health council at its first meeting in Nashville, September 15.—— Employees of the Davidson County Isolation Hospital entertained Dr. William W. Core, superintendent of the institution for thirty-three years, at a dinner, September 16, in honor of his seventy-fourth birthday.

Society News.—Dr. Daniel R. Thomas, Calderwood, addressed the Blount County Medical Society, Maryville, October 5, on causes and treatment of asthma. Dr. Kuebel A. Bryant spoke on first aid in ophthalmic injuries.——Dr. Jack Witherspoon addressed the Nashville Academy of Medicine at its opening session of the fall, September 5, on "Hemorrhage and Diverticulitis of the Colon." Dr. Lucius E. Burch spoke, October 2, on cancer of the cervix and uterus.——Dr. Giles A. Coors, Memphis, among others, addressed the medical society of Dyer, Lake and Crockett counties, September 6, on surgical mortality.——Dr. William D. Haggard, Nashville, spoke on goiter at a meeting of the Gibson County Medical Society, Trenton, August 28.——Dr. Edwin H. Magee, Chattanooga, was the speaker at a meeting of the Hamilton County Medical Society, Chattanooga, October 5, on "Complications of Cervical and Perineal Lacerations."——Dr. Robert C. Anderson, Johnson City, among others, addressed the Washington County Medical Society, October 5, on granuloma inguinale.

VIRGINIA

Health at Richmond.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended September 30, indicated that the highest mortality rate (16.8) appeared for Richmond and the rate for the group of cities, 10. The mortality rate for Richmond for the corresponding week of 1932 was 11.6 and for the group of cities, 9.4. The annual rate for eighty-five cities for the thirty-nine weeks of 1933 was 10.9, as against a rate of 11.2 for the corresponding period of last year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

WEST VIRGINIA

Personal.—Dr. Chesney M. Ramage, Fairmont, has been appointed superintendent of Fairmont Emergency Hospital, succeeding Dr. William A. Welton.——Dr. Reece M. Pedicord has been appointed health officer of Wheeling and Ohio County, succeeding Dr. William H. McLain.

Society News.—The Fayette County Medical Society entertained medical societies of adjacent counties at the Oak Hill Country Club, September 12, with a golf tournament in the afternoon, followed by dinner and a scientific meeting. Dr. Thomas W. Murrell, Richmond, Va., presented a paper on dermatology and syphilology.——The Hospital Association of West Virginia held its eighth annual meeting in Clarksburg, October 3.——Dr. Maxwell E. Lapham, Philadelphia, who has been conducting extension courses in obstetrics in Virginia for several months, addressed the Mercer County Medical Society, Bluefield, September 8, on operative obstetrics.——Dr. Sylvester J. Goodman, Columbus, Ohio, addressed the Monongalia County Medical Society, Morgantown, August 1, on "Treatment of Postpartum Hemorrhage and Progress of Obstetrics."——Dr. Robert T. Miller, Jr., Baltimore, addressed the Ohio County Medical Society, Wheeling, October 6, on surgical treatment of pulmonary tuberculosis.

GENERAL

Neurologic Congress.—At a preliminary conference in London, September 7, to arrange for the second International Neurological Congress, to be held there in August, 1935, Sir Charles S. Sherrington, Oxford, England, was elected president; Dr. Bernard Sachs, New York, honorary president, and Dr. Gordon M. Holmes, London, England, acting president.

Society News.—Dr. W. Wayne Babcock, Philadelphia, was installed as president of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at its recent annual meeting, and Dr. Marvin P. Rucker, Richmond, Va., was chosen president-elect. Dr. Magnus A. Tate, Cincinnati, was reelected secretary. The next annual session will be held, Sept. 8-10, 1934.

International Conference on Tuberculosis.—The next conference of the International Union Against Tuberculosis will be held in Warsaw, Poland, Sept. 4-6, 1934. Subjects selected for discussion are: (1) biologic variations of the tubercle bacillus; (2) the various forms of osteo-articular tuberculosis and their treatment, and (3) utilization of dispensaries for the treatment of tuberculous patients. The National Tuberculosis Association, 450 Seventh Avenue, New York, is arranging a special party for the Warsaw meeting. Those who wish to travel with the group may obtain further information from the association.

Health in the Byrd Expedition.—Members of Admiral Richard E. Byrd's second expedition to the antarctic region, which was to set out from Boston, September 25, all received thorough physical examinations under the direction of Dr. Joel E. Goldthwait, Boston, and Dr. Guy O. Shirey, recently of Tucson, Ariz., surgeon of the expedition. Members of the first expedition in 1928 were examined in New York and complete physical records were placed on file with the surgeon of the expedition, including blood grouping in case transfusion were necessary in an emergency. The expedition returned without the loss of a man. Fourteen men who went on the first trip have been selected for the second.

Awards of Merit.—The American Congress of Physical Therapy has presented awards of merit for 1933 to the following:

Dr. Claudius Regaud, associate director, Curie Institute, Paris, for meritorious work with radium.
Dr. Walter J. Turrell, University of Oxford, for merit in physical medicine.
Dr. Harvey Cushing, Sterling professor of neurology, Yale University School of Medicine, New Haven, for merit in developing electrosurgery.
Dr. Gustavus M. Blech, Chicago, for pioneer literary work in physical medicine.
Dr. Gustav Bucky, New York, for merit in radiology.

Dr. William L. Clark, Philadelphia, was named president-elect of the congress and Dr. Albert F. Tyler, Omaha, was installed as president. Other officers elected were Drs. John S. Hibben, Pasadena, Calif.; William Bierman, New York; Frederick L. Wahrer, Marshalltown, Iowa, and Walter P. Grimes, Kansas City, Mo., all vice presidents; Nathan H. Polmer, New Orleans, secretary, and John S. Coulter, Chicago, treasurer, reelected. The 1934 session will be in Philadelphia.

Death Rate Lowest on Record.—The general death rate for continental United States for 1932 was 10.9 per thousand of estimated population, the lowest rate ever recorded since the collection of mortality statistics was begun in 1900. The rate is based on reports from the U. S. Death Registration Area (exclusive of Utah), which is estimated to represent 96.3 per cent of the population of the United States. The Bureau of the Census has issued comparative figures for the years 1930-1932 showing the death rates from individual causes. In eighteen groups of causes into which the table is divided, thirteen groups showed decreases in the total number of deaths, three showed increases and two remained about the same. Groups in which large increases occurred were cancer and other malignant tumors and diseases of the circulatory system. In 1932 there were 255,802 deaths from cancer of the stomach and duodenum, 14,871 from cancer of the uterus, 11,863 from cancer of the breast, and 10,420 from cancer of the liver and biliary passages. Deaths from diseases of the circulatory system increased numerically from 280,403 in 1930 to 294,596 in 1932. A noteworthy decrease was in tuberculosis, which caused 9,000 fewer deaths in 1932 than in 1930, a decrease in rate from 71.7 to 63.

Society Elections.—Drs. Eben J. Carey, dean, Marquette University School of Medicine, Milwaukee, and Chevalier Jackson, professor of bronchoscopy and esophagoscopy, Temple University School of Medicine, Philadelphia, were awarded the annual gold medals for research of the Radiological Society of North America, September 29. The award to Dr. Carey was in recognition of his x-ray study of bone growth and to Dr. Jackson for his work in removing foreign bodies from the trachea and lungs with the aid of the x-rays. Dr. Carey is director of medical exhibits at A Century of Progress. New officers of the organizations making up the first American Congress of Radiology in Chicago, September 25-30, are as follows:

RADIOLOGICAL SOCIETY OF NORTH AMERICA
President: Dr. W. Herbert McGuffin, Calgary, Canada.
President-Elect: Dr. Lloyd Bryan, San Francisco.
Secretary: Dr. Donald S. Childs, Syracuse, reelected.

AMERICAN ROENTGEN RAY SOCIETY
President: Dr. John T. Murphy, Toledo.
President-Elect: Dr. George W. Grier, Pittsburgh.
Secretary: Dr. Eugene P. Pendergrass, Philadelphia, reelected.

AMERICAN RADIUM SOCIETY
President: Dr. Rollin H. Stevens, Detroit.
President-Elect: Dr. William H. Cameron, New York.
Secretary: Dr. Edward H. Skinner, Kansas City, Mo., reelected.

AMERICAN COLLEGE OF RADIOLOGY
President: Dr. Henry K. Pancoast, Philadelphia.
President-Elect: Dr. Thomas A. Groover, Washington, D. C.
Secretary: Dr. Benjamin H. Orndoff, Chicago, reelected.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 23, 1933.

The Number of Physicians in Great Britain

In a review of the numerical strength of the medical profession, the *British Medical Journal* gives figures showing a steady increase of the proportion of physicians to the population in the last fifty years. The following are the numbers at decennial intervals:

Year	Physicians on Register	Population of British Isles
1881	23,275	35,241,482
1891	29,555	38,104,975
1901	36,912	41,976,827
1911	40,913	45,370,530
1921	45,408	47,146,306
1931	55,604	48,089,485

These figures show that, while the number of physicians in 1921 was nearly double that in 1881, the population had increased only 34 per cent. During the last ten years the number of physicians has increased by 10,000, while the population has increased by much less than 2,000,000. Making allowance for the large number of registered physicians living abroad and for those no longer in practice, the proportion of physicians to population is more than one to every thousand. In the United States it is estimated that there is one to every 800; in Austria, one to 900; in Switzerland, one to 1,250; in Germany, one to 1,345; in Denmark, one to 1,430; in France, one to 1,510; in Holland, one to 1,820; in Czechoslovakia, one to 1,970, and in Sweden, one to 12,860.

The German Persecution of Physicians

The number of Jewish physicians who have sought refuge in this country from the German persecution has been exaggerated by certain journals desiring to raise a scare about British jobs being endangered at this time of depression. It is officially stated by a subcommittee of the Jewish Medical and Dental Emergency Association that the number of German physicians and dentists who have so far registered with the committee does not exceed 180 and that only about eighty to a hundred of them are endeavoring to obtain a British qualification. Of these, thirty-five have been placed at Edinburgh and three or four have been admitted to most of the medical schools in Great Britain and northern Ireland. As pointed out in a previous letter, the persecution is not confined to the Jews but is directed against all persons who show pacifist or liberal opinions. But the physicians who have sought refuge in this country appear to be all Jews. The opposition, which has arisen on a limited scale in certain quarters, disclaims any intention to obstruct the admission of Jewish research workers and leading specialists or of physicians in limited numbers. In the case of scientists, no opposition of any kind has been manifested. Six German Jewish professors have been appointed to two years research fellowships in history, economics, physics, psychology and physiology at Manchester University. Four German specialists, including a physician, a gynecologist and a bacteriologist, have accepted posts at the Victoria Jewish Hospital, Manchester. Last June Michael Polyani, the Hungarian physical chemist, who resigned his Berlin professorship as a protest against Nazi treatment of Jewish professors, was appointed to the chair of physical chemistry in the University of Manchester. The formation of the Academic Assistance Council under the presidency of Lord Rutherford to assist refugee scientists has been described in a previous letter. The council has raised $50,000 by voluntary subscription and is aiming at raising $200,000. It has allotted $1,000 a year each to fifty refugee scientists.

Poisonous Metallic Dusts

An investigation by two chemists, Dr. T. J. Dunn and Mr. H. C. L. Bloxham, of the unexplained deaths of cattle who grazed in different parts of the county Durham has shown how the atmosphere can be polluted by the emanations from coke ovens, which were found to be in proximity in all cases. The pasturage in the neighborhood was found to contain lead. In the stomach and intestine of one of four bullocks that had died unexpectedly lead, copper and manganese were found. The owner of a farm near the coke ovens had lost thirty animals, while others, which were moved to other pastures on becoming ill, recovered. Nothing was found in the water to explain the death of the animals, but in the grass lead and copper were found to the extent of 14 and 4.7 parts per million, respectively. The internal organs of the animals contained lead in the following proportions per million: stomach tissue, 0.6; kidneys, 1.7; liver, 2.6. These organs also contained, respectively, 3.2, 2.1 and 3.5 parts per million of copper. The source of these metals seems to be the pyrites in coal, which may contain lead in proportions varying from 20 to 54 parts per million.

Dunn and Bloxham have also drawn attention to the prevalence of metallic dusts in the air of manufacturing towns, as a result of the combustion of coal both in houses and in furnaces. Analyses of various kinds of coal and of domestic and industrial soots revealed lead varying from 5 to 461 parts per million. The various kinds of dusts deposited in different open areas of Newcastle and on shelves of houses, porticoes and the entrances to public buildings revealed lead to the extent of 3,000 parts per million, copper 1,600, zinc 4,700 and arsenic 400. Also, while the pasturage of purely rural districts was found to be free from lead, it was found in vegetation growing along roads where there was much automobile traffic. This was attributed to the tetra-ethyl lead present in some gasoline.

The Decline of Vaccination

The decline of vaccination, following the practical abolition of compulsion (by allowing a conscientious objection of the parent to vaccination to secure exemption), is causing concern to the public health authorities. The official figures show that only 39 per cent of the children born in 1931 (the last year for which statistics are available) were vaccinated, compared to 75 per cent in 1905. The following shows the downward trend in the last five years:

Year	Percentage Vaccinated	Percentage of Conscientious Objections
1927	44.2	41.2
1928	42.6	42.5
1929	39.9	44.7
1930	40.1	45.6
1931	39.0	46.7

The Spread of Typhoid by Unrecognized Cases

In recent years typhoid has greatly diminished in this country, as a consequence of improved hygiene. The sporadic cases and the occasional outbreaks that still occur are attributed mainly to typhoid carriers. In the *Glasgow Medical Journal*, Dr. C. M. Smith has described important work done by the public health department of Glasgow in connection with typhoid. In the last eight years 800 cases of verified typhoid occurred in Glasgow, and 1,608 contacts were examined bacteriologically in order to ascertain whether they were carriers. Of these, fifty-eight proved to be carriers and fell into three groups:

fourteen chronic carriers, ten temporary carriers and thirty-four recent "missed" cases (contacts who had recently an illness which might have been a very mild attack of typhoid). The conclusion is drawn that these cases, which considerably outnumber the carriers, now play a larger part than the latter in the spread of typhoid in Glasgow. The chronic carriers, the number of whom may be underestimated, were found to be responsible for only twenty cases. During the eight years, only one case could be attributed to the cases of typhoid treated in hospitals. The 800 cases were made up of 529 sporadic cases and 271 that occurred in outbreaks, of which the largest was one of sixty-two cases of paratyphoid B in 1927. The origin of the sporadic cases frequently could not be traced. In Glasgow, carriers are prohibited from engaging in any occupation with food. It is held that the only efficient treatment of the carrier is excision of the gallbladder, but this operation is almost always declined.

PARIS

(From Our Regular Correspondent)

Aug. 30, 1933.

The Sanatorium and the Campaign Against Tuberculosis

For several sessions the Academy has been the scene of a discussion between several of its eminent members on the place of sanatoriums in the organization of the crusade against tuberculosis. The discussion was precipitated by Professor Sergent, who complained that the sanatorium in the treatment of tuberculosis is being belittled. A number of these institutions have been created, and others are being proposed. This represents an enormous expenditure of money. In the meantime, public opinion is developing to the effect that the progress made in the treatment of tuberculosis with pneumothorax, phrenicectomy, apicolysis and aurotherapy render the stay in a sanatorium useless, so that patients might just as well be treated at home, under the supervision of experienced physicians. What Mr. Sergent did not say is that sanatorium treatment, unless the patient is indigent and is treated gratuitously, is exceedingly expensive. A Paris physician, who has a son in a sanatorium, expends, owing to pneumothorax treatment with repeated insufflations and continual radiographic examinations, an annual sum exceeding 40,000 francs, and this in spite of the fact that he has the benefit of reduced rates. At present the sanatorium is available only to the indigent, whose expenses are paid by the government, and to millionaires. This is the reason why middle class patients avoid the sanatorium, to which may be added an unwillingness to live, for years, a life of idleness, away from their families. Family physicians are inclined to encourage these sentiments. Mr. Sergent was the first to protest against the abandonment of sanatorium treatment, which, in his opinion, has no substitute, as it combines the essential conditions on which is based the logical treatment of tuberculosis: isolation, pure air, absolute rest, constant medical supervision and training of the patient in a mode of living that he must henceforth follow. The new forms of treatment give much better results when they are applied by competent persons in the atmosphere of the sanatorium. Mr. Rist agreed that sanatorium treatment should remain the basis of the general treatment of tuberculosis. The necessary physical and mental rest is impossible to secure at home; and among the masses the tuberculous person does not always find in his family the encouragement needed, as the family frequently does not understand the gravity of the situation. The educative rôle of the sanatorium must not be forgotten. The patient learns here how to take care of himself. By making admission to sanatoriums easier, one combats the baneful influence of treatment by charlatans. Mr. Hayem thought that some directors of sanatoriums do not take sufficient account of digestive disorders, so frequent in tuberculous persons. Forced feeding is not suitable for all patients. Overweight, contrary to current opinion, is not a sure sign of improvement in tuberculous persons. Mr. Léon Bernard emphasized that it is important to oppose public opinion that undermines the sanatorium for reasons of personal convenience. Mr. Bezançon, in agreement with Mr. Sergent, ascribed first place to the sanatorium in the crusade against tuberculosis. He opposed, however, the idea that all a tuberculous person needs is to consent to a protracted stay in a sanatorium, and that recovery outside of a sanatorium is impossible. He suggested a modification of that idea. The sanatorium should admit not merely patients in the beginning stage, who present simple congestion and are not contagious, but also acute febrile types. It is the type of expensive sanatorium, whose benefits are too transitory, to which Mr. Bezançon had declared he preferred active treatment in the specialized urban hospital. Hence the misunderstanding that arose. The new idea is to create therapeutic centers of two types: an urban type for diagnosis, the selection of patients, and the preparation for and the institution of ambulant pneumothorax, and an extra-urban type, corresponding in a general way to the sanatoriums of former days. Mr. Bezançon pointed out that, to prevent the urban therapeutic centers from becoming overcrowded, it is desirable that a greater number of patients be deflected toward the sanatorium. If more urban centers for treatment of the tuberculous are to be created, there should be an increase in the number of sanatoriums, in order that the present spectacle of patients being compelled to wait months before securing admission may cease. Bezançon emphasized that the crusade against tuberculosis is, to a great extent, identical with the promotion of general hygiene.

ITALY

(From Our Regular Correspondent)

Aug. 15, 1933.

Lectures in Military Hospitals

Through the initiative of the general management of the army medical corps, a series of lectures by university professors is being organized in the military hospitals. As the Milan Military Hospital, Prof. Carlo Foa, director of the Physiologic Institute at the University of Milan, delivered a lecture on the "Metabolism of Calcium in Disorders of the Skeleton." The speaker said that calcium is present in every cell of the animal organism and is needed for the life and the functioning of every tissue. The normal source of calcium is the food, but absorption by this route does not take place readily and a large part of the calcium in the food is eliminated with the feces. The calcium-phosphorus quotient in the diet is important. The optimal value is 1:3, as in human milk. The bile, in which calcium is soluble, plays an important part in the exchange of calcium. The subcutaneous or intramuscular injection of the parathyroid hormone increases the concentration of calcium in the blood serum. Such increase is gradual and attains the maximum (occasionally 18 mg. per hundred cubic centimeters) in from twelve to eighteen hours. The skeleton can take on or yield up calcium according to the needs of the body, for the mineral constituents of the bones undergo a continuous change. Professor Foa described the various forms of parathyroid osteosis, ankylosing polyarthritis due to hyperfunctioning of the parathyroids, Paget's disease and Recklinghausen's disease. In some cases of osteomalacia there might be a diagnosis of hyperparathyroidism, and operations on the parathyroids would in that case be justified.

In the military hospital at Messina, Professor Izar, director of the Clinica Medica at the University of Messina, lectured on "Amebiasis." The port of entry of the parasite is always

oral; indirect contagion is possibly the most common. The liver is the most frequent seat of metastasis. The ameba reaches the liver by the portal route and may produce various clinical forms of hepatitis and also abscess. The treatment of amebiasis rests largely on emetine, combined with arsenical preparations and purgatives, and possibly hepatocentesis.

Research on Lysocythin and on Nerve Regeneration

The Academy of Medicine of Turin met recently under the chairmanship of Professor Vanzetti. Belfanti presented a paper on the disintegration of lecithins. The enzymes present in snake venom may transform lecithin into a highly toxic substance, which hemolyzes red corpuscles and is termed "lysocythin." Lysocythin has been isolated from some organs of certain mammals, particularly from the pancreas of the horse; this transitory terminal substance is then transformed into nontoxic phosphatides. Belfanti has succeeded in isolating lecithinase from the pancreas of the horse; it is on lecithinase that the function of transforming lecithin into lysocythin depends. Japanese investigators assert that they have found lysocythin in polished rice and that it is identical with the defective diet toxin that is thought to be the cause of beriberi. The speaker demonstrated, in agreement with Contardi, that the belief in the action of lecithin as the cause of beriberi is erroneous.

Goria suggested a device for maintaining the course of tertian malaria in inoculation malaria. The device consists in taking the blood during the period of apyrexia, defibrinating it, adding mercury cyanide, and injecting the plasma intravenously. With this procedure, malarial inoculation becomes practicable even in patients with weak resistance, and one avoids the dangers due to the development of daily febrile attacks or too violent attacks of fever.

Dagliotti reported experiments in which he divided the sciatic nerve of dogs at the hip and then separated the fibers of the central stump and sutured only a small part of them to the peripheral stump. A few months later, by means of laminectomy, he destroyed the sensory fibers and removed the six larger spinal ganglions on the side previously operated on. After from eighteen to twenty-one months the dogs were killed, and it was found that in them function was perfect. The muscles of the two limbs had acquired an almost identical weight. The nerve fibers were counted at various heights, and it was observed that from a central stump containing 2,000 myelinic, almost exclusively motor, fibers about 4,000 fibers had been regenerated, which were distributed in a homogeneous manner among all the fasciculi of the peripheral stump. The histologic preparations of the muscles revealed a greater volume of the fibers of the muscles on the side operated on, but there were fewer of them. According to the author, these results may justify attempts to bring about a numerical increase of the nerve fibers that survive, in forms of partial paralysis of a nerve, by means of simple transversal neurotomy of that nerve and precise apposition and suture of the stumps. This intervention, suggested by Purpura in October, 1931, had been performed by the speaker, a few months previously, in a child with severe paralysis of the lower limbs due to an attack of poliomyelitis eight years previously. Three years has now elapsed since the intervention, and some improvement may be noted.

The Sanitary Condition of the Army

The Direzione generale di sanità militare has published a report on the sanitary condition of the army in 1929 which reveals that the morbidity, which in 1928 was 573 per thousand, declined in 1929 to 546. The mortality was 3.1 per thousand of the average number enlisted, which marked a decline over previous years. The average number of hospital patients per thousand effectives was 20.9. Considered by organizations, the greatest morbidity was found amoung the newly enlisted infantry and the least morbidity among the seasoned infantry. The morbidity was highest in the month of July and the lowest during the last three months of the year. The most frequent disorders with which the troops were affected were conditions of general malaise (244.9 per thousand patients), infectious fevers of short duration, and muscular rheumatism. Of the average force present, 1.9 per thousand came down with typhoid or paratyphoid infection, resulting in a case mortality of 16 per cent. The cases of undulant fever amounted to 0.1 per cent of the average force, with no deaths; there were no cases of smallpox; there were 4.2 per thousand cases of measles, with a mortality of 0.3 per cent. The cases of scarlet fever amounted to 0.2 per thousand, with a mortality of 3.6 per cent. Influenza presented a morbidity of 12.3 per thousand, with a mortality of 0.07 per thousand. One infantryman was attacked by leprosy. The cases of venereal disease treated in the military sanitary institutions amounted to 25.8 per thousand of the average force, while the cases of malaria detected were 7 per thousand, and the cases of acute articular rheumatism were 4.1 per thousand. Tuberculosis developed in 2.7 per thousand troops. Of the cases of tuberculosis diagnosed, 52.4 per cent concerned the respiratory apparatus, and 47.6 per cent other organs. Of the men admitted to institutional care for tuberculosis, 23.7 per cent died. In all the military hospitals taken together, 8,058 operative interventions were performed.

Aiding Orphans of Physicians

Under the chairmanship of Generale Medico Della Valle, a meeting was held recently of the committee for the aid of orphans of physicians who died during their war service. The chairman stated that the work will continue and will not be completed until 1942. Up to the present time, sixty-five orphans have been aided, forty-eight of whom have been granted funds with which to pursue their studies.

BELGRADE

(From Our Regular Correspondent)

Sept. 13, 1933.

Syndicate of Physicians

Although there are not too many physicians in Yugoslavia, their situation has become difficult since the World War. This is due not only to the bad economic conditions in the country but also to a vigorous effort to socialize medicine since 1925. A number of public health institutions have been opened; unfortunately, these institutions do not only preventive and diagnostic work but also curative work free, especially for the treatment of venereal and infectious diseases. Imitating the state, many private institutions and associations have taken physicians into their service for a minimal monthly pay, such as social insurance, railway companies, miners and maritime companies. The state physicians are the only ones who have an assured income and a pension after thirty-five years of active service. Besides, they are allowed to have private appointments in any of the institutions mentioned, where they work after their regular service hours. As all the positions in the state services are taken, newly qualified young physicians are obliged to begin as private practitioners, so that the number of private physicians is constantly increasing and their earnings are diminishing. In such a situation they finally decided to create a syndicate, although the official chamber of physicians has already been in existence for ten years. The chamber of physicians is only an administrative representation of all physicians of the country. In reality the interests of private physicians and of state physicians are rather opposed, and that is why the former decided to unite in a syndicate.

The aim of the syndicate is to protect the interests of its members by determining minimal fees, by just distribution of

appointments, by aiding its members in the case of sickness or unemployment, by controlling medical competition, and by diminishing unemployment among physicians. The syndicate will survey medical ethics and will judge and pass resolutions in the case of breach of medical ethics of its members. The syndicate will combat chiropody and try to prevent such practice. Every salaried service will be regulated through the syndicate. Every member has to pay an annual subscription for membership and a monthly subscription for the sickness fund. During unemployment or during sickness, the members do not pay their subscription if the unemployment lasts more than six months. Each member will receive a subsidy during unemployment or sickness if it lasts more than ten days. If a member is called before the court for professional delinquency he will also receive this subsidy. In case of death of a member, his family receives compensation; this compensation is given for members over 40 years of age if they have been members for a period of fifteen years; for younger members ten years of membership gives the right to claim the same compensation.

The Number of Physicians in Yugoslavia

There are 4,951 physicians for a population of 14,170,000; that is, one physician for 2,862 inhabitants. There is an uneven distribution of physicians in Yugoslavia. The cities have 4,059 physicians, whereas the villages have only 812. Belgrade has 768 physicians, or one for 325 inhabitants. A similar ratio exists for nearly all cities. Living conditions in the villages are not so good and the earnings are insignificant. There are 1,299 physicians as state officials, including 402 for curative medicine in districts, 477 in hospitals and 420 for preventive medicine. In social insurance institutions there are 1,409 physicians. This means that there are 2,708 physicians with permanent pay and an assured pension and 2,243 working as private practitioners. While there are not too many physicians in the country their situation is becoming worse every day because the population cannot afford to pay private physicians and are going to university clinics and other state institutions where examination and treatment are given free of charge. Actually, according to general health conditions of the population, a larger number of physicians is required.

Infectious Diseases During 1932

There was nearly the same number of infectious diseases during 1932 as during 1931. The eleven diseases most widespread in the country are typhoid and paratyphoid fever, typhus fever, dysentery, scarlet fever, measles, diphtheria, cerebrospinal meningitis, tetanus, anthrax and acute poliomyelitis. Of these eleven diseases, in 1932 there were 248 cases for each 100,000 inhabitants and in 1931 a little more, 255.

The mortality from these eleven diseases was 9.29 per cent in 1932 and 9.32 per cent in 1931. In 1932 diphtheria and croup took first place with 10,158 cases and 1,208 deaths, and measles had the second place with 6,956 cases and 106 deaths. There were 6,908 cases of typhoid, with 746 deaths; 4,383 cases of scarlet fever, with 296 deaths, and 2,656 cases of bacillary dysentery, with 302 deaths. There were only 122 cases of cerebrospinal meningitis, with 56 deaths, or a mortality of nearly 46 per cent.

Professor Blumenthal Comes to Belgrade

Invited by the faculty of medicine in Belgrade, Prof. Dr. Blumenthal of Berlin has come to Belgrade, having accepted the appointment as professor. He came with his assistant Dr. Jacob. Professor Blumenthal has taught in Berlin since 1905. He has devoted his life to the study of cancer. In 1917 he was appointed director of the institute for cancer research in Berlin, and general secretary of the German Society for Cancer. He has written two well known books, "Chemical Processes in Cancer" and "The Results of the Experiments with Cancer." Professor Blumenthal will continue in Belgrade his experimental work on cancer in the Institute of Pathology, brilliantly equipped by the late Prof. Georges Joannovic. As soon as he comes back from the international congress on cancer in Madrid he will begin teaching.

VIENNA

(From Our Regular Correspondent)

Aug. 31, 1933.

The Fate of the Hajek Clinic

There are probably few American physicians who studied in Vienna without having visited Professor Hajek's rhinolaryngologic clinic, which had an excellent international reputation. In July of this year, after completion of his honorary year, Hajek bade farewell to his clinic. The laws of Austria require every clinical teacher to give up teaching on reaching his seventieth birthday. By exception, he may be granted an "honorary year," on completion of which he must, however, resign. Professor Hajek, as stated, had completed his honorary year, and the farewell celebration held in July was an ovation in evidence of the esteem in which the scientist was held by all who knew him. Representatives of all the scientific bodies participated in the farewell ceremonies. Unfortunately, it has recently been announced by the authorities that the Hajek clinic is to be discontinued and that only the otologic clinic will be retained and will take over the work of the Hajek clinic in rhinolaryngology, in which instruction by first-class specialists will continue to be given. The old controversy as to whether otology should constitute a specialty distinct from rhinolaryngology, or whether they should be united, has been decided here in favor of their union. It remains to be seen whether the former conception offered better possibilities from the scientific and theoretical points of view. The friendly rivalry of the two clinics existing in Vienna proved advantageous to the medical profession, for the two clinics were thus forced to do their best. Financial considerations were of such moment to the government that it was induced to discontinue a clinic that had a well organized staff and equipment and attracted many foreign students. The clinic, which was founded more than fifty years ago by the old masters of laryngology (Türck and Schrötter), and whose traditions exerted a remarkable influence, will probably turn over its quarters to a surgical clinic, although no final announcement as to their disposition has as yet been made.

Austrian Law on Sterilization of Males

In connection with a complaint brought against three physicians and their aids, who, during last year, had sterilized a large number of men by means of vasoligation and vasectomy, the supreme court decided the question as to whether such an intervention can be judged, according to Austrian law, as a grave bodily injury and punished accordingly. The accused were all acquitted, on the ground that the law still in force did not justify the imposition of a sentence. The present law covers only an "incurable" permanent injury caused by operation. At the trial, experts testified that by means of another operation the sterilization might be eliminated. Thus the physicians could not be punished for a "permanent and incurable" injury to health. The law demands also evidence of "an unfriendly purpose" or "a design to maltreat" the person injured, on the part of the accused, and that evidence is not available if the patients have accepted the operation of their own free will. Moreover, no injurious effects of the operation have been demonstrated in a single case. It was found to be impossible to convict the accused on the basis of the paragraph of the Austrian law prohibiting charlatanry. "Charlatanry" is defined in Austria as "unauthorized" treatment; that is to say,

by persons who, neither by virtue of their studies nor by reason of permission granted by the authorities, have the right to render medical aid to patients. The court held that the penal code now in force precludes legal prosecution for the performance of sterilization. The law shows here a defect and new legislation is an urgent need.

The New Austrian Ethical Code

The government recently submitted, for criticism, to representatives of the medical profession of the republic, the draft of a new ethical code and council of physicians, and requested a prompt return of the opinion of the profession in regard to the draft, which may be enacted into law this year. The draft undertakes, for the first time in Austria, to define medical activities the exercise of which is expressly reserved to legally qualified persons. Furthermore, the requirements for the practice of medicine are stated, and provisions for the revocation of the right to practice are established. The following provision is entirely new: So long as the studies and the examinations prescribed for the attaining of a doctor's degree in medicine do not provide for practical training for newly graduated physicians, such a course of training for the physician extending over at least one year, at the bedside of patients, after obtaining a doctor's degree, must be evidenced by acceptable certificate before such a physician can begin to practice. The draft recognizes furthermore the principle that the license to practice is not bestowed by a board but results automatically as soon as the requirements (studies and examinations) have been met. Confirmation, by authorities, of the license serves only the purpose of general control, in order to prevent unauthorized persons from practicing. The authorities, as in the past, will not be permitted to interfere with the professional activities of physicians. Only in exceptional cases (for instance, sudden onset of mental disease in a physician), which might endanger public welfare, can the authorities intervene or forbid the activities of the physician. A permanent prohibition to practice will, however, require a judicial investigation in cooperation with the chamber of physicians. The protection of physicians against damage to their profession is strengthened by the fact that the title "physician" or "doctor of medicine" is legally protected. Migratory practice—practicing simultaneously in two or more different communities or in two or more different places of the same community—is absolutely prohibited. Likewise, the title of "specialist" is legally restricted. The disciplinary powers of the council on medical ethics, which is to be appointed by the chamber of physicians, are strengthened. As compared with previous provisions, much heavier fines for offenses against the tenets of medical ethics are imposable. More particularly, the draft of the proposed legislation provides that, in grave offenses, the council on medical ethics may deprive the guilty physician of the right to practice. Such a decision may, on appeal, be reversed by the ministry of public health. Medical circles are protesting against this provision of the draft, which would enable a physician's colleagues to impose on him what would amount to a death sentence. It may be assumed that the universal rejection of this particular paragraph will induce the government to strike it out. The proposed law provides that for the practice of medicine in Austria the following conditions must be met: (1) citizenship of Austria; (2) a diploma granted by a faculty of medicine in Austria, or a similar diploma bestowed by a foreign country and approved by competent authorities in Austria; (3) practical training for at least one year in a hospital, after attaining of the diploma of doctor of medicine, and (4) attainment of full legal age, which in Austria is 24 years. An interesting provision of the projected law is that a physician who practices medicine shall pursue no other occupation that is inconsistent with the dignity and honor of the medical profession. No physician may refuse to give necessary first aid unless he has a convincing reason for such refusal. Nor may a physician who has been elected a member of the chamber of physicians (the legal representative body of the medical profession) refuse to serve in such a capacity unless he can present acceptable reasons. Another provision is an effort to check the entrance of undue numbers to the medical profession: The admission of physicians to service in the krankenkassen is to be regulated in such a manner that only such physicians will be accepted as have had at least two years of hospital experience and have been for at least ten years citizens of Austria.

Mortality from Tuberculosis in Vienna

The Statistical Yearbook of the city of Vienna for 1932 states that the number of persons who died in 1931 from all forms of tuberculosis was 3,158, whereas the number in 1932 was reduced to 2,804. The mortality of tuberculosis was 19 per 10,000 of population during the five-year period 1926-1930, 17 in 1931, and only 15 in 1932. This marked decrease is doubtless due to the excellent housing facilities in Vienna. The municipality of Vienna has erected 30,000 dwellings (about 10 per cent of the total number in Vienna), all of which are constructed in accordance with modern, hygienic principles. These dwellings have been placed at the disposal of the poorer strata of the population at a low rent. This generous housing policy of the municipality has thus discovered the most effective means of combating the tuberculosis morbidity and also the tuberculosis mortality.

Marriages

THOMAS ENGLISH MCGEACHY, Decatur, Ga., to Miss Frances Josephine Fletcher of Winston-Salem, N. C., August 2.

OSCAR DAVID GARVIN, JR., Ridge Spring, S. C., to Miss Evelyn Margaret Williamson of Columbia, in August.

EDWARD BRUCE MEWBORNE, Lawrenceville, N. J., to Miss John Zennie Akridge of Thomasville, Ga., June 24.

JOSEPH CHARLES TATUM, Ancon, Canal Zone, to Miss Evelyn Katherine Locher of Memphis, Tenn., August 4.

WILLIAM LAWRENCE MATTISON, Calvin, Okla., to Miss Lois Juanita Martindale of Nashville, Ark., June 26.

BERNARD PATMOS, Adrian, Mich., to Miss Frances Elisabeth Hyde of Evanston, Ill., September 30.

OSCAR HENRY HANSON, Cambridge, Wis., to Miss Helen Jean Young of Fort Atkinson, August 16.

THOMAS HENRY BLAKE, Sheffield, Ala., to Miss Laura Lee Peaster of Thornton, Miss., August 2.

DEWITT TALMADGE MILAM, Monroe, La., to Miss Mary Lee Beckett of Shreveport, August 1.

SIGMA VAN LEWIS, Middlesex, N. C., to Miss Ola Elizabeth Caudle of Randleman, August 5.

HENRY PARDEE CARR, Milledgeville, Ga., to Miss Marion Corrigan of Atlanta, August 23.

EDWARD DOTY DAKE, Rome, N. Y., to Miss Muriel Doris Stretton of Syracuse, April 19.

OLIVER W. JENKINS to Miss Mary Ellen Bailey, both of Chattahoochee, Fla., July 30.

WILLIAM F. MYERS, Coal Valley, Ill., to Miss La Verne Madison of Moline, June 28.

RAYMOND R. RIVARD, Madison, Wis., to Miss Edna Sinz of Fond du Lac, August 16.

DONALD M. NORTON, Medford, Wis., to Miss Anne Russell of Lake Geneva, in August.

ROBERT E. BURNS to DR. CHARLOTTE J. CALVERT, both of Madison, Wis., August 14.

LELAND J. BRANNON, Columbia, S. C., to Miss Viola Mobley of Kershaw, August 19.

LUCIUS GEORGE THOMAS, New Orleans, to Miss Julia Ruth Gray, August 6.

HUGH L. BASS to Miss Valeria Edelen, both of Louisville, Ky., in August.

Deaths

Henry Jackson Hayes ● Major, U. S. Army, retired, Memphis, Tenn.; Medical College of Virginia, Richmond, 1914; member of the American Psychiatric Association; served during the World War; was appointed first lieutenant in the medical corps in 1919 and was retired as a captain in 1926 for disability in line of duty; was promoted major under an act of Congress in 1930; medical director of a sanatorium bearing his name; aged 44; died, September 15, of acute dilatation of the heart and influenza.

Raymond Bartlett Morris ● Olean, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1910; secretary of the Cattaraugus County Medical Society; member of the American Roentgen Ray Society and the Radiological Society of North America; fellow of the American College of Surgeons; served during the World War; on the staff of the Olean General Hospital; aged 48; died, September 16, of myocarditis.

Denis Edward McMahon, Elmhurst, N. Y.; University and Bellevue Hospital Medical College, New York, 1908; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; past president of the Queens County Medical Society; on the staffs of St. Catherine's Hospital, Brooklyn, and St. John's Long Island City Hospital; aged 49; died suddenly, September 8, of heart disease.

Arthur Dermont Bush, Decatur, Ga.; Atlanta College of Physicians and Surgeons, 1901; member of the Massachusetts Medical Society and the Medical Association of Georgia; formerly professor of pharmacology, Emory University School of Medicine, Atlanta; author of "A Text-Book of Pharmacology" and "College Text-Book of Physiology"; aged 58; died, September 6, in Albany, of multiple sclerosis.

Maurice Daniel Barnette, Watertown, N. Y.; University of Michigan Medical School, Ann Arbor, 1912; member of the Medical Society of the State of New York; served during the World War; on the staffs of the House of the Good Samaritan and the Mercy Hospital; aged 46; died, September 7, of complications following an operation for appendicitis.

Randall Solon Tilles ● St. Louis; Washington University School of Medicine, St. Louis, 1908; formerly instructor in obstetrics, St. Louis University School of Medicine; served during the World War; on the staffs of the Jewish and St. Louis Maternity hospitals; aged 50; died, September 14, following an operation on the gallbladder.

Thomas Meares Green ● Wilmington, N. C.; University of Maryland School of Medicine, Baltimore, 1900; fellow of the American College of Surgeons; on the staffs of the Bulluck and the James Walker Memorial hospitals, Wilmington, and the Babies' Hospital, Wrightsville Sound; aged 54; died, September 14, of myocarditis.

James Alexander Browne, Paterson, N. J.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; formerly health officer, county coroner and registrar of vital statistics in Paterson; on the staff of St. Joseph's Hospital; aged 67; died, September 6, of carcinoma of the tongue.

Parnell E. Fisher ● Providence, R. I.; College of Physicians and Surgeons, Medical Department of Columbia College, 1894; on the staffs of the Rhode Island, Providence Lying-In, Homeopathic and Miriam hospitals; aged 65; died, September 16, of cerebral thrombosis, diabetes mellitus and arteriosclerosis.

Frederick Wooster Owen, Morristown, N. J.; Georgetown University School of Medicine, Washington, D. C., 1867; member of the Medical Society of New Jersey; formerly on the staffs of the All Souls Hospital and the Morristown Memorial Hospital; aged 92; died, August 25, of lobar pneumonia.

Derostus E. Smith ● Kansas City, Kan.; College of Physicians and Surgeons, Medical Department Kansas City University, 1900; Kansas City Homeopathic Medical College, 1901; aged 56; on the staff of the Bethany Methodist Hospital, where he died, September 2, of coronary thrombosis.

John K. Moradian, Chicago; National Medical University, Chicago, 1897; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; member of the Illinois State Medical Society; aged 61; died, August 13, of bronchopneumonia and myocarditis.

Ulysses Morris Bachman, Cleveland; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1907; served during the World War; on the staff of the Polyclinic Hospital; aged 51; died, September 14, of subacute bacterial endocarditis.

William George Miller ● Norristown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1897; past president of the Montgomery County Medical Society; on the staff of the Montgomery Hospital; aged 59; died, September 6, of cerebral thrombosis.

Frederick Hilliard Robinson, New Bedford, Mass.; Tufts College Medical School, Boston, 1896; member of the Massachusetts Medical Society; aged 64; died, August 31, in the Huggins Hospital, Wolfeboro, N. H., of strangulated hernia and diabetes mellitus.

Edwin Ruthven Harvey, Long Beach, Calif.; Eclectic Medical Institute, Cincinnati, 1901; charter member of the board of directors and on the staff of the Seaside Hospital; aged 59; died, June 21, of a rupture of the esophagus into the left pleural cavity.

James Aloysius McCracken, Norristown, Pa.; Medico-Chirurgical College of Philadelphia, 1905; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 52; died, August 12, of injuries received in a fall.

William Herbert Rothwell, Murray, Utah; Gross Medical College, Denver, 1900; member of the Utah State Medical Association; veteran of the Spanish-American War; formerly city health officer; aged 56; died, August 16, of carcinoma of the lung.

Harrold Albert Bachmann ● Chicago; University of Pennsylvania School of Medicine, Philadelphia, 1917; member of the Central States Pediatric Society; on the staff of St. Luke's Hospital; aged 41; died, September 21, of angina pectoris.

John Gustavus Rulison ● Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1903; served during the World War; member of the state legislature; aged 57; died, September 3, of coronary thrombosis.

Rienzi R. Shank, Trotwood, Ohio; Medical College of Ohio, Cincinnati, 1900; member of the Ohio State Medical Association; veteran of the Spanish-American War; aged 63; died, September 14, of heart disease.

Burton O. Post, Sulphur Springs, Ind.; Medical College of Indiana, Indianapolis, 1888; member of the Indiana State Medical Association; for many years bank president; aged 69; died, September 1, of heart disease.

Sample B. McKerrihan, Portsmouth, Ohio; Medical College of Ohio, Cincinnati, 1877; member of the Ohio State Medical Association; aged 84; died, August 13, in the Mercy Hospital, of prostatic hypertrophy.

Walter Elliott Lauderdale ● Geneseo, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1874; formerly mayor; aged 83; died, August 28, of cerebral embolism.

George Malcolm Anderson, Lincoln, Kan.; College of Physicians and Surgeons, Medical Department Kansas City University, 1901; member of the Kansas Medical Society; aged 60; hanged himself, June 30.

Jesse Overton, Troup, Texas; Louisville (Ky.) Medical College, 1893; member of the State Medical Association of Texas; health officer of Troup; aged 62; died, July 26, of carcinoma of the right lung.

Harvey M. Griggs, Philadelphia; University of Maryland School of Medicine, Baltimore, 1890; aged 67; died, August 20, in the Homeopathic Hospital, Reading, of injuries received in an automobile accident.

Ledru Pierson Smock ● Haddonfield, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1882; member of the Medical Society of the State of Pennsylvania; aged 76; died, September 14.

Thomas Bernard Scott ● Seattle; John A. Creighton Medical College, Omaha, 1917; served during the World War; aged 42; died, August 17, in the Virginia Mason Hospital, of pulmonary tuberculosis.

Frederick Symon Cate, Los Angeles; University of Maryland School of Medicine, Baltimore, 1898; aged 72; died, August 14, of chronic myocarditis, chronic arteriosclerosis and cirrhosis of the liver.

Mason Allen, St. Paul; University of Minnesota Medical School, Minneapolis, 1897; member of the Minnesota State Medical Association; aged 60; died, August 31, of hypertensive heart disease.

Arthur Allen Hugg, Middleport, Ohio; Jefferson Medical College of Philadelphia, 1883; member of the Ohio State Medical Association; aged 80; died, September 2, of cerebral hemorrhage.

Arnold Frotcham Furrer ● Cleveland; Harvard University Medical School, Boston, 1902; for many years member of the school board; aged 57; died, September 12, of coronary thrombosis.

Homer Erwin Safford ● Detroit; University of Michigan Medical School, Ann Arbor, 1896; member of the American Psychiatric Association; aged 63; died, September 12, of hypernephroma.

Andrew Hunter Sullivan, Sulphur, Okla. (licensed, Oklahoma, under the act of 1908); member of the Oklahoma State Medical Association; aged 59; died, July 24, of heart disease.

James Claude Paine, Peoria, Ill.; Northwestern University Medical School, Chicago, 1898; served during the World War; aged 58; died, August 17, of a self-inflicted bullet wound.

Alexis B. Barker, Peoria, Ill.; Cincinnati College of Medicine and Surgery, 1892; member of the Illinois State Medical Society; aged 58; died, September 10, of pulmonary tuberculosis.

Robert Erskine, Lowellville, Ohio; Kentucky School of Medicine, Louisville, 1898; formerly mayor of Lowellville; aged 79; died suddenly, August 30, of cerebral hemorrhage.

Theodore Barrington David, Indianapolis; Indiana University School of Medicine, Indianapolis, 1929; aged 28; was found dead, August 21, of a self-inflicted bullet wound.

Francis Edward Chalmers, George, Iowa; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1904; aged 58; died, August 1, of carcinoma of the pancreas.

Augustus E. Hewitt, Walnut, Kan.; Rush Medical College, Chicago, 1889; also a druggist; aged 73; died, September 5, of cerebral hemorrhage and diabetes mellitus.

Kate A. Machin, Macomb, Ill.; Keokuk (Iowa) Medical College, 1898; member of the Illinois State Medical Society; aged 72; died, August 6, of carcinoma of the liver.

John Johnson Rufe ● High Bridge, N. J.; Jefferson Medical College of Philadelphia, 1902; aged 56; died, August 17, in the Easton (Pa.) Hospital, of septicemia.

Edwin George Wood, Carmel, Calif.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1885; aged 72; died, July 10, of coronary thrombosis.

Napoleon J. A. Salvail, Helena, Mont.; School of Medicine and Surgery of Montreal, Que., Canada, 1883; aged 73; died, August 19, of angina pectoris.

Lambertus Kuntz, Perry, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; aged 75; died, June 25, of cerebral hemorrhage.

George Littleton Wilson, Banks, Ark.; Memphis (Tenn.) Hospital Medical College, 1900; aged 63; died, May 8, in Houston, Texas, of heart disease.

Benjamin Wesley Toothaker ● St. Joseph, Mo.; Kansas City Medical College, 1900; aged 58; died, August 4, in Rochester, Minn., of pituitary tumor.

Jefferson D. Clemons, Coronado, Calif.; University of Louisville (Ky.) School of Medicine, 1892; aged 72; died, July 17, of chronic myocarditis.

Samuel Miller, Des Moines, Iowa; Drake University College of Medicine, Des Moines, 1912; aged 49; died, August 14, in the Mercy Hospital.

Ernest H. Muse ● Roanoke, Va.; University College of Medicine, Richmond, 1907; aged 52; died, June 10, of cerebral edema and arteriosclerosis.

Verlin C. Thomas, San Francisco; American College of Medicine and Surgery, Chicago, 1904; aged 57; died, July 29, of coronary occlusion.

James Buckner Lewis, Salem, Ill.; Eclectic Medical Institute, Cincinnati, 1878; aged 80; died, August 29, of carcinoma of the prostate.

L. L. Janeway, Whitewell, Tenn.; Chattanooga Medical College, 1892; aged 83; died, May 15, of lobar pneumonia and a hip fracture.

Amos E. Calvert, Parsons, W. Va.; Physio-Medical College of Indiana, Indianapolis, 1884; aged 70; died, August 17, of ascites.

Noah S. Nonamaker, Mahone Bay, N. S., Canada; Jefferson Medical College of Philadelphia, 1879; aged 79; died, May 24.

Leo Blais, Lac Megantic, Que., Canada; Laval University Faculty of Medicine, Quebec, 1904; aged 55; died, July 10.

Bureau of Investigation

HISTEEN

Another Addition to Asthma and Hay Fever Quackery

"Histeen" is a newcomer in the "patent medicine" field. It is put on the market by the Histeen Corporation of Chicago. According to the state records Joseph B. Creevy is the president of the concern and also one of the three directors. Creevy is no new name to the readers of this department of THE JOURNAL. As has been brought out in other articles, Joseph Creevy some years ago was employed as an advertising man of a Chicago tailoring company and later employed as office manager of a general mail-order business. Doubtless realizing that the chief asset in mail-order quackery is a knowledge of the mail-order business, plus a knowledge of advertising, and knowing how unnecessary it is to have any medical, chemical or pharmaceutical knowledge, Creevy went into the nostrum field. What seems to have been his first "patent medicine" concern was the "Western Medical Association" (dealt with in THE JOURNAL, Jan. 28, 1922), a crude piece of mail-order quackery which purported to sell to persons it never saw a treatment for epilepsy. The name of the concern was later changed to "Western Medical Corporation" (the subject of an article in THE JOURNAL, Aug. 5, 1933), but Creevy continued to act as president.

The next heard of Creevy was in connection with the Van Ard Sanatorium (dealt with in THE JOURNAL, April 19, 1930), a piece of mail-order rheumatism-cure quackery. Creevy was president and his brother-in-law, H. L. Cassel, was secretary. Cassel was also alleged to have formerly been employed by the same mail-order concern that employed Creevy. Cassel, it appears, was also the sole owner of the Cass Laboratories (see THE JOURNAL, Jan. 15, 1927) which, like the Van Ard outfit, sold a mail-order cure for rheumatism. The secretary of the Van Ard Sanatorium at the time of its incorporation was one J. A. Carroll, who is treasurer of the Histeen quackery and also connected with "Witter Water," a product advertised by "patent medicine" methods.

The Histeen business and other Creevy quackeries are housed in a building at the corner of Canal Street and Pershing Road, Chicago. One finds in the Chicago telephone directory the following concerns listed under the same telephone number and in the same building:

WESTERN MEDICAL CORPORATION
H. L. CASS CORPORATION
CHARLES J. CAHILL, M.D.
WITTER WATER, INC.
VERNON MEDICAL COMPANY
RESEARCH PRODUCTS COMPANY
HISTEEN CORPORATION

It should be said in explanation that Charles J. Cahill, M.D., was, if he is not still, "medical superintendent" of the Van Ard quackery, while the Vernon Medical Company is merely another name under which the "epilepsy cure" is sent out.

The advertising of Histeen first appeared about the middle of August, this year, and according to a large broadside that was sent out by the Histeen concern or its agents, was to be featured in certain newspapers in the middle-west. The broadside itself was a foot and a half wide by two feet long, and it has been reduced to a few inches in the reproduction that appears with this article. It was sent to druggists as an argument for them to "cash in" on the demand that the advertisements might be expected to create. According to it, large display advertisements of Histeen were being carried in the following newspapers:

Tribune, Chicago
Globe-Democrat, St. Louis
Journal-Transcript, Peoria, Ill
Register-Republican, Rockford, Ill.
State Journal, Springfield, Ill.
Herald-Review, Decatur, Ill.
Dispatch, Moline, Ill.
Pantagraph, Bloomington, Ill.
Commercial News, Danville, Ill.
Argus, Rock Island, Ill.
News, Indianapolis
Tribune, South Bend, Ind.
News-Sentinel, Fort Wayne, Ind.
Courier-Journal, Evansville, Ind.
Star-Tribune, Terre Haute, Ind.
Star, Muncie, Ind.
Democrat and Leader Times, Davenport, Iowa

Those who are familiar with newspapers of the middle west will recognize that the papers listed above do not belong to the cheap and nasty type of publications, but are of the responsible

and conservative class. This again verifies what is notorious to those familiar with the problem, namely, that the advertising ethics, by and large, of most newspapers and magazines is determined by the counting-house. When times are prosperous and advertising contracts for meritorious merchandise are comparatively easy to get, newspapers carefully scrutinize advertisements and reject much of the crude "patent medicine" copy offered. During financial depressions, with advertising incomes seriously threatened, misleading and even fraudulent advertisements begin to appear in many of the best dailies published. A few years ago it was quite inconceivable that, for example, the Chicago *Tribune*, a paper that has made a name for itself in fighting some forms of quackery, would accept an advertisement for such a product as Histeen; and the same is probably true of many of the other papers that are carrying Histeen advertising.

The Histeen advertising declares that hay-fever and pollen asthma are due to histamine poisoning and that Histeen is a compound which "acts to counteract histamine poisons, neutralize its action and release the irritating effect of histamine." The advertisements state, further, that the compound known as Histeen is the alleged discovery of a "Chicago specialist" —a "member of the American Medical Association"—who, after two and a half years of research, evolved Histeen, and that his discovery has been verified by tests "conducted in the laboratories of a famous medical university."

Photographic facsimile of label from bottle of Histeen.

When the Histeen Corporation was asked to give the name of the "Chicago specialist" and the "famous medical university," it refused to do so on the ground that when it entered into negotiations with the "specialist," it "agreed to purchase his formula and transact business only with the understanding and agreement signed to that effect that we would not at any time divulge his name or the name of the university where the tests were made with the product." This, according to the Histeen Corporation, "is solely for the purpose of protecting this physician's ethical standing." One can dismiss the fact that it might be difficult to injure the "ethical standing" of a physician who would enter into an agreement of this kind and assume that the exploiters of Histeen are much too experienced in the field of quackery not to know that the chief asset of the nostrum exploiter is mystery based on secrecy.

From what has been said regarding the main thesis of the Histeen advertising, namely, that hay fever and pollen asthma are both due to histamine poisoning and that Histeen is supposed to be an antidote for it, one familiar with the research that has been done in this field would naturally assume that Histeen might be expected to carry as its chief ingredient some substance such as histaminase. Because of the large number of inquiries that have come in regarding this product, the Bureau of Investigation asked the Chemical Laboratory of the American Medical Association to have Histeen analyzed, so that the findings could be presented to the medical profession and the public. The A. M. A. Chemical Laboratory has not only done a large amount of chemical work on the product, but it reports on pharmacognostic and biologic investigations of the nostrum. The findings are incorporated in the report that follows.

LABORATORY REPORT

"Original specimens of Histeen (Histeen Corporation, 415-423 W. 39th Street, Chicago) were submitted to the A. M. A. Chemical Laboratory for examination at the request of the Bureau of Investigation. [A photographic facsimile of the label on the bottle appears on this page.—Ed.]

"The bottles of Histeen each contained 30 tablets of a gray color, possessing an aromatic odor. The average weight of a tablet was 0.42 Gm. (approximately 6½ grains) with a variation of 2.8 per cent above to 1.5 per cent below.

"Qualitative tests indicated the presence of antipyrine, phenobarbital and ephedrine, a small amount of chloride, together with excipients such as starch, talc and calcium carbonate. The aqueous extract of Histeen was alkaline in reaction. Emodin-bearing drugs, acetylsalicylic acid, epinephrine, iodides and arsenic compounds were not found. Pharmacognostic examination indicated the presence of a small amount of powdered lobelia, but did not disclose stramonium.

"As the Histeen advertising gives the impression that this product contains histaminase, pharmacologic tests were made by an authority on this subject. He reported as follows:

> "Histaminase (the specific histamine inactivating enzyme) cannot be detected in the tablets. Histamine is not inactivated on sterile incubation with Histeen. Histaminase is an oxydase decomposing histamine with simultaneous consumption of oxygen. No oxygen uptake was observed when Histeen and histamine were kept under the proper conditions. Even if Histeen had contained a histaminase preparation it would probably be of no value when given by mouth because it would be destroyed by the stomach. Carefully prepared extracts from Histeen were dissolved in water adjusted to proper *pn* and were subjected to tests on smooth muscle. Contractions of dogs and guinea pigs intestine were produced with histamine and pilocarpine. Such contractions were very slowly relaxed by addition of the above Histeen extract (indicating the presence of a drug such as ephedrine). Antipyrine and phenobarbital were shown not to cause relaxation of the above contracted smooth muscles under the conditions of the experiment. Belladonna alkaloid (atropine) was not indicated."

"Quantitative determinations yielded the following:

Antipyrine	61.1	per cent
Phenobarbital	2.75	per cent
Ephedrine base	1.5	per cent

"Based upon the foregoing, it may be calculated that Histeen tablets contain as essential ingredients: Antipyrine, approximately 60 per cent; phenobarbital (or phenobarbital sodium) approximately 2¾ per cent; and ephedrine, probably as ephedrine hydrochloride, 1½ per cent. Each tablet, therefore, may be calculated to be equivalent to approximately:

Antipyrine	(0.257 Gm.) 4	grains
Phenobarbital	(0.012 Gm.) 0.2	grain
Ephedrine hydrochloride	(0.008 Gm.) 0.12	grain

"Based on the average daily dose (8 tablets) recommended, this would be equivalent to: Antipyrine, 32.0 grains; phenobarbital, 1.6 grains; and ephedrine hydrochloride, 1.0 grain. Furthermore, the firm states that 'where necessary, 3 tablets per dose may be taken with perfect safety as long as required. . . .' This represents a daily dose of 12 tablets which (based on the foregoing) would be equivalent to: Antipyrine, 48 grains; phenobarbital, 2.4 grains; and ephedrine hydrochloride, 1.4 grains."

From the analytical work, it seems then, that this "amazing new direct relief" has for its chief ingredient, making up nearly 60 per cent of Histeen, our old friend antipyrine, which has been used by physicians for nearly fifty years and has been prescribed for the purpose of giving symptomatic relief in certain forms of asthma and hay fever for almost as long. In addition Histeen has also phenobarbital (luminal), as well as ephedrine, a substance that enters into an enormous number of proprietary remedies for the symptomatic relief of hay fever and asthma. And this mixture of well known drugs is the alleged discovery of a "Chicago specialist" who will not allow his name to be used because he is afraid of hurting his "ethical standing!"

But this is not all of the story. The trade package of Histeen recommends as dosage either two or three tablets four times a day. The statement is made that three tablets four times a day may be "taken with perfect safety as long as required." Obviously, from the analytical work done, the person who takes Histeen gets 4 grains of antipyrine with each tablet, and where he takes three tablets four times a day he has a daily intake of 48 grains of antipyrine! He also gets in the same period about 2½ grains of phenobarbital and about 1½ grains of ephedrine.

In view of this, the following facts are of interest: (1) A Mr. F., who lived in the Chicago area and who had for some time been a sufferer from asthma, started taking Histeen apparently about the time it first came on the market the middle of August. On August 23 his family called in a physician, but Mr. F. was dead when the physician got there. The death certificate gave as the direct cause of death acute dilatation of the heart, with bronchial asthma and hypertrophy of the heart as contributing causes.

(2) A pharmacist in Milwaukee wrote in for information about Histeen and stated that a young woman who was suffering from hay fever had been using the nostrum, and added: "It relieves the hay fever, but seems to make her sleepy."

(3) A physician in northern Illinois reported that he had had many inquiries concerning Histeen and, being a sufferer from hay fever himself, he took some of the nostrum. He describes the physiologic reaction thus:

WONDERFUL NEWS FOR HAY FEVER VICTIMS...IN THESE BIG ADS!
At Least One, Often Two Ads Each Week... In Each of These Papers Blanketing Illinois, Indiana and St. Louis
Cash In On This Big Effort!
"RIGHT ABOUT FACE IN THE TREATMENT OF HAY FEVER"
HISTEEN
CHICAGO SPECIALIST FINDS AMAZING NEW DIRECT RELIEF FOR HAY FEVER!
HISTEEN
DOCTOR REVOLUTIONIZES HAY FEVER TREATMENT!
HISTEEN

Miniature reproduction of a broadside to druggists telling them about the heavy advertising campaign of Histeen. In the original this was 1½ feet wide and 2 feet high.

"I took three tablets within a period of six hours, which is a much smaller dose than recommended by the directions. It had quite definite physiological results. I am convinced that it contains ephedrine or some adrenalin-like substance. It did stop the hay fever symptoms and seemed to raise the blood pressure and increase the pulse rate. It also had an adrenalin reaction in that there was apparently a dilatation of the kidney capillaries as shown by marked increase in the amount of urine. The skin seemed quite dry and there was also quite definite dryness of throat, especially of soft palate. . . . My impression is that this preparation is definitely a dangerous preparation to give to the public. My own reaction was a feeling that I did not dare take much more of it."

(4) A Chicago physician sends in the following report:

"Mr. L., 26 years old, was persuaded to try this remedy [Histeen] for hay fever. On September 6 he took, as directed, two tablets after each meal and two next morning. About two that afternoon he became ill, nauseated, vomited twice, and soon began to have a severe angio-neurotic edema of the penis, testicles, both hands and both feet. He is still unable to walk. It is very probable that Histeen is directly responsible for his condition, as there is no evidence of nephritis or cardiac disease, nor could we trace the edema to any other cause."

On September 16 the officials intrusted with the enforcement of the National Food and Drugs Act seized 1,294 packages of Histeen in St. Louis, Mo., charging that the stuff was misbranded under the federal law. All that the quacks who exploit Histeen have to do, however, under our present inadequate law, is to cease making false, misleading or fraudulent claims on their *trade packages* and they will be exempt from the penalties of the Act. They can falsify to their hearts' content in the newspaper advertisements, on billboards, over the radio, or in any other avenues of publicity that will help to sell their nostrum. And the public will, in total ignorance, be persuaded to swallow this potentially dangerous mixture in the belief that a new cure has been discovered and that it is quite safe!

Summed up then, it seems that, essentially, Histeen is a secret mixture of three well-known drugs, all of them potentially dangerous in the hands of the untrained. Further, the nostrum is recommended in dosages that a physician with any regard for his patient's safety and his own reputation would hesitate to prescribe.

Correspondence

HEAT PROSTRATION AND DEHYDRATION

To the Editor:—Two years ago, as I heard the story of a friend who collapsed after hours in his orange grove on an intensely hot day, it occurred to me that heat exhaustion is dehydration. He was brought back to practically normal by 1,000 cc. of dextrose salt solution in the half hour it took to give it. THE JOURNAL published my report, Oct. 17, 1931, p. 1169.

My suggestion a little later to Dr. Ray Lyman Wilbur, then Secretary of the Interior, that Hoover Dam would be a good place to test this principle resulted in Dr. W. A. Haas and the officials of the Six Companies interesting themselves in it and establishing the necessary plant and in Harvard University sending a research group to the dam in the summer of 1932.

In April, 1932, I visited Hoover Dam and discussed prevention and treatment of heat exhaustion with Dr. W. A. Haas, then in charge. Abundant good drinking water was then being provided. During that summer the use of abundant water both in prevention and in treatment was followed. Unfortunately, Dr. Haas died in March, 1933, but his successor, Dr. R. O. Schofield, has followed the same plans this summer.

After the pioneer stage of crude facilities with its disastrous record of 1931, two simple preventive measures were adopted. The first was an adequate, palatable, easily accessible supply of good drinking water. Next was the blanket advice to every one to drink freely—more than enough.

During a part of July and August, 1932, a group of investigators came from Harvard University, under the leadership of Dr. D. P. Dill, for the purpose of studying especially the question of fatigue in high temperatures. The result of their work was to emphasize the importance of keeping up the supply of chlorides and the blanket advice that every one should take an abundance of table salt with meals or otherwise.

The "Six Companies" having the contract for building the dam, together with the insurance carrier, give the employees excellent hygienic care. They have established three first aid stations with personnel, in addition to the hospital. Weekly first aid and educational meetings are held and at the meetings these heat protective measures have been fully discussed, so that the men are well informed on the general program and especially on the use of water in large quantities at all times. The emphasis has been less on salt but more on water. It should of course be on both. Great care is given the water supply, so much so that they did not hesitate to import water

from Las Vegas, 30 miles away, when their own supply from the Colorado was temporarily unpalatable. At the hospital, preparations are at hand to give immediate intravenous and subcutaneous salt and dextrose solutions in acute cases of heat exhaustion. The result of this treatment, which was carried out in all cases both in 1932 and in 1933, has been most gratifying—prompt improvement and prompt recovery in all cases. A record of the 1932 cases is found in "Heat Cramps, A Clinical and Chemical Study," by John H. Talbott and Jost Michelsen (*J. Clin. Investigation* **12**:533 [May] 1933). The results are a veritable laboratory demonstration. In the face of an excessively hot summer with scores of cases all over the country, the Hoover Dam community, though situated in an area of extremely high summer temperatures, has been practically exempt. The record: 1931, seventeen deaths from heat exhaustion; no record of number of recoveries. 1932, no deaths; seven mild cases of exhaustion, all patients recovering promptly. 1933, no deaths; four cases of exhaustion, all patients recovering promptly.

Mr. H. C. Watts, superintendent of the substation of the Southern Sierras Power Company at Hoover Dam, gives the following data on temperatures for approximately six weeks during July and August, 1933: average maximum, 108; average minimum, 90; high range, 126; average humidity, 50 per cent. These temperatures were taken in the usual government official housing. They were taken on the upper dam levels, from 700 to 800 feet above the bed of the river. Temperatures in the bottom of the river canyon, where much of the work is going on, are normally about 10 degrees higher than on the cliffs where these thermometers are located.

The plan of treatment is built on the principle that heat exhaustion is dehydration with loss of chlorides. A day on the desert demonstrates that the 3 or 4 quarts of water taken leaves the body by transpiration visible or invisible, and a taste of the skin shows that it takes the chlorides with it. The salty taste of the arms caused a sensation in a group crossing the desert the other day. In high temperatures the body cools only by evaporation. Water passing from a solid to a vapor needs heat. This it takes from the body and thereby cools it. It may be in invisible quantities and the person may not show any perspiration, but after a few hours careful weighing and the record of intake and output shows the enormous loss of water.

Dr. Dill in his experiments (*J. Biol. Chem.* **100**:755 [May] 1933) lost 20 pounds in seven hours' exercise covering a 20 mile walk in a shade temperature of 104 F. He made up a part of that by drinking 13 pounds of water meanwhile, leaving a net loss of about 7 pounds.

Autopsy records show an empty heart and a congested skin after sudden death from heat exhaustion and sunstroke. Evidently heat dilates the capillaries in the skin and allows outpouring of water from the body until there is not enough fluid left to fill the blood vessels sufficiently to keep up pressure in the brain. When the blood pressure drops below 70, 60 or 50, unconsciousness follows. The reserve intracellular and intercellular fluid is unavailable or too slowly available and for this the loss of chlorides is partly responsible by disturbing the osmotic balance. The cyanotic purple look of a victim of heat exhaustion has kept observers from seeing that the patient really has not enough water (blood) rather than too much and in need of bleeding, as was the custom not so long ago.

Early in 1932 the Southern Sierras Power Company broadcast the information to its employees, and, though many of them have been working in desert and heat, they have had no heat exhaustions during either 1932, a comparatively cool summer, or 1933, an exceptionally hot summer.

Cornelius Van Zwalenburg, M.D., Riverside, Calif.

MILK AND MOLASSES ENEMA

To the Editor:—In The Journal, recently, inquiries were made regarding the possible origin of the use of the milk and molasses enema. One of these letters states that Dr. Senn over forty years ago found in his investigations that it was in common use in India and possibly its first employment originated there.

My own professional work dates to early 1883. The three previous years, while a student, I had the privilege of riding with my grandfather, a physician of wide experience, over a large country field. I found him at that time using this formula frequently and I recall his stating to me that it was an old and valuable therapeutic measure.

I have no knowledge of it beyond this. He was educated in the Yale University Medical School, graduating about 1834. Something like twenty years ago two surgeons in the Mountainside Hospital began using the milk and molasses enema in their professional work and seemed to think that they had found something entirely new; but when I recounted to them my experience of many previous years and where my knowledge of it came from they concluded that perhaps there was nothing new under the sun after all.

Levi W. Halsey, M.D., Montclair, N. J.

PRECIPITATION TESTS FOR SYPHILIS

To the Editor:—In an article in The Journal, August 12, page 542, Dr. Israel Weinstein presents his view of the history of the scientific development of the precipitation tests for syphilis. He apparently discovered an official confirmation of my priority in that part of medical science in the exhibit of the United States Public Health Service at the Chicago Century of Progress Exposition. He gives a list of scientists who published descriptions of precipitation tests for syphilis before I did in 1917. But he forgets to add that those tests never were approved of as reliable in practical laboratory work. None of my predecessors were able to get results of practical value with their methods. My reaction, the description of which was published in 1917, was the first one that proved to be of practical value. That is the main point. I was the first to show that it is possible to perform a precipitation test for syphilis of the same reliability as the complement fixation test of Wassermann.

The authors mentioned by Dr. Weinstein—Michaelis, Jacobsthal, Bruck, Hidaka and Hecht—never at all claimed priority against my methods. In all scientific books about precipitation tests, even in the one written by Jacobsthal himself, will be found the confirmation of my priority in that field of science.

Dr. Weinstein criticizes the fact that I improved my methods during the course of time and presented several reactions, whereas Kahn in America worked out only one. The Kahn test was proved to be the best at the conference in Copenhagen and even better than my last reaction: the clarification test at the conference at Montevideo. Dr. Weinstein forgets to add that Kahn himself executed his own method at that last conference, whereas my reaction was performed by other scientists whom I do not know personally and who did not learn the method from me. Kahn himself in absolute loyalty laid stress on that important point in his review of the conference at Montevideo. Thus the question which of the two tests (Kahn test or clarification test) is really the better is not yet settled. Dr. Weinstein obviously thinks that the fact that an author, for instance Kahn, never altered his method proves that this method is absolutely perfect and does not need any improvement. That is an error. On the contrary, the same fact may be caused by the impossibility of improving the method. Everybody knows that I am the last one to deny the great values of the Kahn test, but like all the biologic methods even that

excellent test seems to have besides its well known advantages also some disadvantages in comparison with other methods. In some articles published in American medical journals I find complaints about the difficult reading of weakly positive Kahn reactions and about the instability of the antigens. With cerebrospinal fluids the Kahn test seems to be more complicated than other methods. If I were the author of the Kahn test I would try to alter those weak points of the method if it is possible. I do not know whether even Kahn himself would be able to do so if he wished to, for in all the biologic methods there is a certain limit of efficiency that cannot be passed over by technical improvements. Therefore the fact that a certain method was never altered by its author does not prove that it is absolutely perfect and does not need any improvement. As far as I know, Kahn himself never claimed the absolute perfection of his test.

ERNST MEINICKE, M.D., Hagen-Delstern, Westphalia.
Director, Serologischen Instituts und
der Lungenheilstätte Ambrock.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BLOOD CELL COUNTING TECHNIC

To the Editor:—In making a white or red blood cell count, how much difference in the counting in each of the four corners do you consider a good count? The number of cells in each corner will vary in all counts, and I should like to know the average difference. When Wright's blood stain is used, will a longer time in using the stain undiluted or in using it after it is diluted with water bring out the polymorphonuclears and other cells more distinctly? Which part of the staining process brings out the polymorphonuclears? In making up a solution with tablets and methyl alcohol, I find that there is much precipitate when the water is added when using it for staining. What is wrong? There are many variations in the technic of staining with Wright's stain, and I should like to know which is considered the best one. Kindly omit name.

M.D., Minnesota.

ANSWER.—An accurate red or white blood cell count can be made only with an accurate hemocytometer, such as the Levy, which is the best obtainable. The cover glass must also be accurate and specially made for blood counting apparatus. The apparatus must be dry and clean, free from dust or lint. The diluting pipets must be accurate and preferably tested by the Bureau of Standards.

After the dilutions have been made, the pipet should be shaken for at least two minutes and the first two drops discarded. Then the central platform should be filled with blood. If any air bubbles are present or liquid overflows into the grooves of the slide another mount should be made. The cells should be allowed to settle for three minutes. Low power is used in examining for uniformity of distribution. If the cells are unevenly distributed, the diluted blood should be shaken thoroughly and the mount repeated.

At least 100 small squares should be counted. For accurate work, 200 are recommended. Each twenty-five squares should be added separately. The highest and lowest totals should not vary by more than 25. Greater variations indicate poor mixing and necessitate repetition of the work. Osgood and Haskins' Laboratory Diagnosis (Philadelphia, P. Blakiston's Son & Co., 1931) gives an excellent discussion of the technic of accurate blood counting.

The precautions for the white cell count are the same as given for the red cells. The four large squares (each 1 sq.mm. in area and containing sixteen medium sized squares) at the corners of the ruled area are counted.

The essentials of good staining with Wright's stain are a good blood smear and a good stain. If the stain is purchased in tablet form, one tablet should be ground up in 10 cc. of absolute anhydrous methyl alcohol (one tablet is 0.05 Gm.). The mixture is shaken and allowed to stand twenty-four hours and should be filtered before use. A fresh stain should be made at least once a month and filtered as often as a precipitate forms. The stain must be well stoppered to prevent evaporation of alcohol or the taking up of moisture.

The slide is covered with the stain and allowed to stand for one minute. During this minute the methyl alcohol fixes the cells. Then an equal amount (same number of drops) of distilled water is added. Osgood and Haskins recommend a buffer phosphate solution instead of water (6.63 Gm. of Merck monopotassium phosphate and 2.56 Gm. of Merck anhydrous disodium phosphate in 1 liter of distilled water, 1 cc. of chloroform being added). The time for the water or buffer solution varies with the stain, and the optimum must be determined by trial. This is usually one minute but may be as high as three minutes. Old stains require a longer time. When the time is up, the stains should not be poured off but floated off with water, the slide being held level. The slide should be washed thoroughly from half a minute to a minute. The slide should be placed on end to dry in the air.

The white cells should show distinct characteristic granules. If these do not show or are pale, and if the neutrophil granules are pink instead of lilac, the fault is due to too short staining and the time must be increased. Poor differentiation may be due to too short a time of washing.

There should be no precipitate or débris on the slide. A precipitate will result from the use of a stain that needs filtering but is more often due to using too small an amount of Wright's stain, permitting the methyl alcohol to evaporate almost completely before the water or buffer is added. It may also be due to pouring off the stain instead of floating it off and to insufficient washing.

USE OF METAPHEN IN PEPTIC ULCER

To the Editor:—Dr. Clarence M. Trippe (*Ann. Int. Med.* **6**:901 [Jan.] 1933) has discussed in some detail the oral administration of metaphen in the treatment of gastric ulcer, duodenal ulcer and chronic ulcerative colitis. The author gives an average dose of 3 cc. of 1:500 solution of metaphen and reports most gratifying results in eighty-two patients. In view of the fact that metaphen belongs to the nitrobenzene-mercury complex, would one be apt to produce severe renal damage from the oral administration of such a preparation? Would you consider this a safe therapeutic agent in obstinate cases, not doing well under a strict Sippy regimen? Please omit name.

M.D., Indiana.

ANSWER.—P. J. Crittenden has investigated the action of metaphen, given intravenously, on the blood pressure, heart rate, respiratory rate, red cell fragility, and kidneys of dogs (*J. Pharmacol. & Exper. Therap.* **44**:423 [April], **46**:39 [Sept.] 1932) and reports that the dosages recommended for intravenous use in man, 0.05 mg. per kilogram, do not produce ill effects. As much as 1 mg. per kilogram given intravenously for a long period did not produce any demonstrable changes in the kidneys. The lethal dose in rabbits and dogs varies between 3 and 5 mg. per kilogram.

When given by mouth, the same precautions must be observed as for any other mercurial compound, considering the fact that metaphen has a mercury content of from 56 to 57 per cent. The daily administration of 16 cc. of a 1:500 solution, which corresponds to 32 mg. of metaphen and approximately 17 mg. of mercury, for an unlimited time without a check on the urine is not without some danger, despite the small amounts absorbed. The experiments of C. M. Trippe on the oral administration of metaphen to rabbits as described in his article do not give sufficient details from which definite conclusions can be drawn. At best, this method of treatment is still in its experimental phase and its use should be restricted to patients who can be carefully checked for evidence of mercury poisoning.

BATH URTICARIA—UNUSUAL PIGMENTATION OF FACE

To the Editor:—A girl, aged 19, whose general physical condition is normal, has a tendency to a bath urticaria. Immediately after a cold bath or swim she develops an intense itching all over the body. A hot bath or other external heat is the only means of relief. Will you give any information, and the bibliography on this subject? Another girl, aged 20, is developing pigmentation of the face closely simulating the mask of pregnancy. What remedies can you suggest for this disfiguring ailment? Please omit name.

M.D., Florida.

ANSWER.—Urticaria from cold, congelation urticaria, has been given considerable notice in recent years. Lehner, in his case (*Klin. Wchnschr.* **8**:306 [Feb. 12] 1929) demonstrated the presence in the blood serum of the part exposed to cold a substance which caused a wheal when injected into the skin of the patient or of other persons and in the healthy persons sensitized the spot injected so that it reacted to cold with wheal formation, the Prausnitz-Küstner reaction. By exposing to cold an arm in which the circulation of blood was cut off by a constrictor, he showed that the irritating substance appeared only in the serum from the part exposed to cold. Serum from the other arm caused no reaction.

By applying an ice pack to the chest before breakfast, he caused a hemoclastic crisis, during which the venous blood was cherry red and the white blood count only half that taken before the crisis, with increase of polymorphonuclears and

decrease of lymphocytes. The refractometric index, 13480 before the crisis, was 13470 after it and the coagulation time was increased from four to five minutes. After two such shocks on succeeding days, the sensitization began to decrease, and by persistent daily shocks was reduced nearly to normal in two months.

Perutz, Brügel and Grünfeld (*Klin. Wchnschr.* **8**:1999 [Oct. 22] 1929) reported failure to find any evidence that the disease is allergic in nature; but a number of other observers have reported results agreeing with those of Lehner (Weissenbach, R. J., and Brisset, J. P.: *Ann. de méd.* **33**:233 [Nov.] 1932. Klein, A. E.: *Dermat. Wchnschr.* **95**:1741 [Dec. 3] 1932. Vallery-Radot, Pasteur, and Blamoutier, P.: *Bull. et mém. Soc. méd. d. hôp. de Paris* **47**:1907 [Dec. 21] 1931).

The girl with pigmentation of the face should be questioned on the use of any toilet water, such as cologne water, or perfume on her face before going into the sun (Lane, J. E., and Strauss, M. J.: Toilet Water Dermatitis, THE JOURNAL, Sept. 6, 1930, p. 717. Gross, Paul, and Robinson, L. B.: Berlock Dermatitis: Unusual Dermatitis and Pigmentation Following the Use of Perfume, *Arch. Dermat. & Syph.* **21**:637 [April] 1930). She should be asked also whether she has used any preparation for the removal of freckles. While the pigmentation without preceding inflammatory patches is not typical, the question of the use of phenolphthalein should be investigated.

If the pigmentation is about the mouth, erythrose peribuccale pigmentaire of Brocq must be considered, a vascular disturbance with pigmentary changes in women manifesting vascular instability and in most cases some definite pelvic disturbance (Ormsby, O. S., and Ebert, M., Erythrose Pigmentaire Peribuccale de Brocq, *Arch. Dermat. & Syph.* **23**:429 [March] 1931. Obermayer, M. E., and Becker, S. W.: Erythrose Peribuccale Pigmentaire of Brocq, ibid. **26**:444 [Sept.] 1932).

The possibility of Addison's disease or hyperthyroidism must be considered, though it is unlikely that either of these conditions is present.

If no etiologic factor can be discovered and removed with benefit, the peeling treatment may be tried, with full knowledge that any agent which causes peeling may produce a recurrence of the pigmentation. The application might be tried twice daily of bismuth subchloride, 3 Gm.; hydrogen dioxide, 10 cc.; wool fat and petrolatum, to make 30 Gm. until exfoliation occurs, then waiting to see the result and repeating if necessary.

LOW BLOOD PRESSURE IN PREGNANCY

To the Editor:—A primipara, aged 22, Caucasian, whose father died at 50 of influenza and pneumonia, but whose mother is living and well, was somewhat anemic. The mother had several children without any troubles in delivery. The chest circumference of the patient, Jan. 5, 1933, was 75, 77 and 79 cm., the last is full expansion. The pulse was 96 sitting. There was no elevation of temperature. The weight was 96½ pounds (43.7 Kg.), the maximum pelvic circumference, 82 cm. The pelvic measurements were: spines, 22 cm.; crests, 24.5 cm.; trochanters, 30 cm.; external conjugate, 18.5 cm. I gave orders for a hematinic in addition to the usual care. The blood pressure was 116 systolic, 60 diastolic. She ate little, as she was homesick and her family was far distant. I suspected a tuberculous area in the left chest. She was of the pale, black-haired, aquiline-nosed slender type with easily observed subcutaneous veins often seen in southern Jewesses. She is not Jewish. She was nervous and irritable. Under care every two weeks, the chest condition improved rapidly and in two months nothing abnormal could be found. Her health and general condition went up nicely. Her appetite improved. She has had no dental trouble, as I have seen that she has an adequate calcium diet. Her nervousness grew worse until I gave her a sedative; she feels fine now. Her weight remained nearly stationary, being 99 pounds (45 Kg.), Feb. 18; 103 pounds (46.7 Kg.), April 4; 109 pounds (49.4 Kg.), May 18; 112 pounds (50.8 Kg.), June 27, and 116 pounds (52.6 Kg.), July 6, and for the first time she had a protruding abdomen. But her blood pressure since January 26 has been very low. At that time it was 94/76. June 27 it reached 96/72, and it has varied somewhat in between. This has caused some anxiety, and I am wondering just how dangerous such a small pulse pressure may be. The fetus seems to have developed normally, the heart tones being between 120 and 144. The position seems to be left occipitotransverse consistently. The urine has been invariably negative to both chemical and microscopic examination. The breasts are developing nicely. The last period occurred, Nov. 8, 1932. I estimated the fetus at about 4½ pounds (2,150 Gm.), June 27. Do you think the pelvis will interfere with delivery? Is this low blood pressure dangerous? The patient is due between July 20 and August 15. What troubles do you expect I will have, if any, and what management would you advise? I advised hospital delivery. She wants rectal anesthesia.

M.D., Washington.

ANSWER.—No real trouble need be anticipated in this case. The low blood pressures recorded are not unusual in pregnant women, because there is generally a drop of from 5 to 10 points during gestation. If the blood pressure goes below 90, however, the patient should be made to rest at frequent intervals. She should be given tonics, halibut liver oil with viosterol, more calcium and abundant milk, fresh fruits and vegetables. If she is still anemic, active treatment should be directed to overcome this also. If the baby is as small as estimated, there will most probably be no difficulty in spite of the fact that the pelvis is small. The patient should, of course, be given a test of labor. It is unfortunate that the diagonal conjugate measurement was not made, because this is much more important than the external measurements. This measurement should now be made but under strictly sterile precautions, because delivery is due about August 15. The decision to have the patient in a hospital is a wise one, because all primiparas, especially those in whom there are defects, should be delivered in a hospital. There is no reason why the patient should not be given rectal analgesia if she desires it unless, of course, there are abnormalities in the rectum which contraindicate its use.

AMENORRHEA

To the Editor:—I have a patient, aged 18, who has not menstruated for six months. She began her menstrual period when she was 13 but it was never regular, coming every two, three or four months, and now since December, 1932, she has had no sign at all. She is a perfectly normal girl and has just completed her high school education. She has gained about 10 or 15 pounds during the last six months. I have given her whole ovary substance by mouth, 5 grains (0.3 Gm.) three times a day for fifteen days, with no results. Then I gave her six ampules of whole ovary hypodermically at two day intervals with no results. I have thought of dilating the cervix but because of her previous menstruation I did not think it necessary. What would you advise me to do? Please omit name.

M.D., California.

ANSWER.—The absence of menstruation is not necessarily an indication that treatment must be instituted to bring about a return of the menstrual function. However, since the patient is young and since she has gained in weight during the period of amenorrhea, it is advisable to give her thyroid extract. This will have a much greater tendency to restore the menstrual flow than the ovarian preparations that have thus far been administered. The control of menstruation does not reside in the ovaries but in the pituitary gland. However, the thyroid gland has a definite effect on intense bleeding and thyroid extract, given by mouth frequently, has a beneficial effect in cases of disturbed menstrual function. Of course, the patient must be watched closely while she is taking thyroid and it is wise first to have a basal metabolism test performed. If the rate is lower than normal there is an added indication for the use of thyroid, but even if the rate is normal these preparations should be given. The Council on Pharmacy and Chemistry omitted from N. N. R. all whole ovarian preparations because there is no satisfactory evidence that they are active when given by mouth; nor is there evidence to justify their use by parenteral administration. The female sex "hormones," such as "Theelin," belong to a class of active principles, unlike the former in that they possess activity; but their therapeutic usefulness has not been placed on an established basis. In this connection reference is made to the Report of the Council on Estrogenic Substances: Theelin, THE JOURNAL, April 29, page 1331.

INDUSTRIAL HAZARDS OF WORKERS WITH HARD RUBBER PLATES

To the Editor:—I have a patient who does engraving and the cutting of rubber plates. He has become ill with nausea and dizziness whenever he goes round his place of work. He has been ill for several months. He is also troubled with cramping in the abdomen and aching in joints and muscles. His blood shows stippled red cells but he maintains that there is no lead around his work. Please advise what other type of poisoning such a patient may have from working with rubber and ink.

R. B. ROBINS, M.D., Camden, Ark.

ANSWER.—It is assumed that this workman's duties involve only exposure to hard rubber plates and the substances ancillary to this work. Lead is little used in hard rubber and especially is likely to be absent from light colored rubber. Nevertheless it may be the cause of the disease state. The rubber should be tested for lead.

Antimony may be present. In the engraving process, antimony dust may be evolved and breathed. An increasing amount of attention is being paid to antimony as an industrial hazard. Gastro-intestinal involvement is a prime manifestation. Should this workman use in his trade cleansing or softening agents such as benzene, naphtha or carbon tetrachloride, or similar agents much used in the compounding of rubber, the disorder, if occupational in origin, may be traced to one or more of these substances. Should the information here furnished not be sufficient, additional data as to the exact substances used at work should be compiled and sent for supplemental advice.

The fact that the workman becomes ill on merely going about the work place suggests the ill defined state related to sensitivity to naphtha or benzene occasionally encountered in industry.

CAUSES OF PIGMENTATION

To the Editor:—A white child, 9½ years of age, has acquired in the past four years, following a severe case of chickenpox, a mottled heavy brown pigmentation over the exposed portions of the body. It is worse on the dorsal than on the ventral surfaces of the arms. It is sharply demarcated around the neck, corresponding to the cut of the child's dress. The same description applies to the area protected by the shoes. The pigmentation is present on the mucous membranes of the mouth. She has had a few dizzy spells before breakfast but no undue fatigue or asthenia. She is gaining weight normally. There is no evidence of tuberculosis. The diet has been adequate in protein and vitamins. The pigmentation is increased by the sun. Salicylic acid ointment was applied to a small pigmented area on the skin until all superficial epithelium was denuded, without effect on the pigmentation. The child's muscle tone is excellent. The appendages of the skin are normal. She is of average height and weight for her age. The blood pressure is 100 systolic, 50 diastolic. The basal metabolism is plus 2. The urine is completely negative for sugar and albumin but a few pus cells are present. Is there any reason to believe that this pigmentation will be helped by injections of extract of the suprarenal cortex? What treatment would you suggest? Kindly omit name.

M.D., Louisiana.

ANSWER.—It would be of interest to know what, if any, local applications have been made to the skin and whether the child was given sun or artificial light baths. Mercury preparations sometimes cause pigmentation and certain perfumes are capable of causing pigmentations if their use is followed by exposure to strong light. For such pigmentary changes to remain for four years, there would have to be repeated use. Was the child given arsenic for any length of time? Some persons react to a comparatively small amount. Have silver solutions been used in the nose and throat? The pigmentation of argyria is slate blue, however.

If all these possibilities can be excluded, the glands of internal secretion, the ovaries, thyroid, pituitary or suprarenal cortex, may be suspected. The presence of pigment on the mucous membrane suggests the latter. The changes in these glands associated with puberty may correct the condition, or experimental treatment with gland extracts may be tried. This seems justifiable, if done cautiously.

UNUSUAL DISLOCATION OF ULNA

To the Editor:—Would you kindly advise as to the frequency of a forward dislocation of the distal radio-ulnar articulation as a complication of Colles's fracture of the wrist? In a simple Colles fracture with slight backward displacement of the distal fragment and no impaction, this complication seemed to occur. The reduction was easily obtained and checked by roentgenogram following application of a molded plaster splint. One week later, massage and baking were instituted. Two weeks following the injury the distal extremity of the ulna was unusually prominent in front of the wrist and the prominence due to the styloid process was absent. This condition persisted after good union of the fracture and seriously interfered with flexion of the hand, also causing numbness. Temporary relief is obtained by using a wrist support exerting pressure over the lower extremity of the ulna by means of a rubber pad. What treatment is indicated to restore permanent function? Please omit name.

M.D., Washington.

ANSWER.—The unusually prominent dislocation of the ulna was probably caused by slipping of the fragments. The numbness is probably caused by nerve pressure. The treatment indicated is open operation, with living fascial suture.

The backward and upward displacement of the ulna entails a disruption of the inferior radio-ulnar joint. According to Wilson and Cochrane, if the displacement is marked a strain is exerted through the internal lateral ligament on the ulnar styloid and this is frequently fractured. In other cases it is the ligamentous attachment of the fibrocartilage that gives way instead, or the cartilage may be torn across. With the continuation of the force and the rupture of the structures binding the lower ends of the radius and ulna together, the distal radial fragment may be entirely separated from the head of the ulna, which, on account of the accompanying displacement of the hand backward and toward the radius, appears to be dislocated forward in the wrist.

Anterior luxation of the head of the ulna, usually incomplete, may occur as part of the displacement complex in Colles's fracture. Posterior dislocation of the lower end of the ulna with or without accompanying fracture of the ulnar styloid may occur independently of fracture of the radius but is rarely encountered.

The injury apparently is caused by a severe twisting form of violence with hyperpronation of the forearm. The hand is held in the position of pronation, rotational movements of the forearm are restricted with pain referred to the inferior radio-ulnar joint, and the head of the ulna is prominent posteriorly.

Reduction is readily accomplished by strong traction on the hand, with forward pressure on the head of the ulna followed by sharp supination of the forearm. The wrist should be fixed in the supinated position with the hand dorsiflexed on a molded plaster cock-up splint. Immobilization should be maintained for three weeks in order to allow strong healing of the torn ligaments, without which a condition of chronic recurrent luxation is probable. The dislocation, even when reduced, is not easy to hold and a wrist strap should be worn for some time.

In a case of chronic recurrent luxation of six years' duration, Wilson and Cochrane found the attachments of the discus articularis and ulnar lateral ligament torn across, and they were repaired by the introduction of a fascial ligament passing from the ulnar portion of the disk to the posterior surface of the head of the ulna, where it was anchored in the bone. This resulted in a stable and painless wrist with good function.

MIGRAINE AND MENSTRUATION

To the Editor:—A married woman, aged 25, has been a sufferer from headaches and vomiting since her high school days. When the headaches appear, vomiting is obstinate and not even water can be held on the stomach. The "spell" lasts from six to forty-eight hours and may occur anywhere from one to five times a month. Her past medical history is irrelevant. The only abnormality noted is a history of amenorrhea for ten months following the birth of her only child (which was bottle fed). During the second and third trimester of her pregnancy and during the period of amenorrhea following the pregnancy, the spells were absent. Physical examination reveals no definite pathologic condition. The patient wears glasses (the attacks come on whether she wears glasses or not). Pelvic examination reveals a superinvolution of the uterus. The gastrointestinal system shows nothing abnormal, and there are no foci of infection. (The tonsils and appendix have been removed and the teeth are in good condition. No evidence of sinusitis is present.) The blood pressure is 110 systolic, 80 diastolic. Because of the history of amenorrhea and because, although her periods are regular, they show a scanty flow, ovarian injections were given between periods and corpus luteum right after the menses. No beneficial results were noted. Phenobarbital, 1 grain (0.065 Gm.) a day, has not produced any marked effect on the patient. I have finally narrowed down my diagnosis to this: (*a*) hypofunction of the ovary; (*b*) migraine or allergic headache (cause unknown); (*c*) petit mal. Which do you think it is? Please omit name and address.

M.D. Wisconsin.

ANSWER.—The most likely diagnosis in this case is migraine, which not infrequently occurs during the menstrual period. Women so afflicted characteristically advance the information that their headaches are absent during pregnancy and the period of nursing but return when the monthly flow of blood starts again. The headaches often disappear completely and permanently during the menopause. Further evidence of the correlation between migraine and the reproductive organs is the fact that these headaches often occur in women who have menstrual disturbances.

Since the only freedom from the attacks of headaches and vomiting this patient had was during an extended period of amenorrhea, it is logical to assume that an artificial menopause would bring about a cessation of these troublesome symptoms. However, since the patient is only 25 years old, this is out of the question at present. If the headaches and vomiting become absolutely intolerable and cause distressing symptoms, it might be advisable to produce a temporary amenorrhea by means of small doses of roentgen rays or radium; but even such a procedure should be resorted to as a measure of desperation. A much safer way to bring about a cessation of the menses and relief of the symptoms is for the patient to become pregnant again. If the past experience is repeated, she will have relief from the headaches and vomiting for about sixteen months.

SEDATIVES AND FLUIDS BEFORE OPERATION

To the Editor:—Regarding the twenty-four hour preoperative period in laparotomies for hysterectomy or tumor, what is thought by the best men regarding the routine use of sodium amytal and forced fluids containing alkalis by mouth? Is it not true that this fluid is probably excreted before operation is usually performed? And why the sodium amytal?

D. B. RICE, M.D., Britton, S. D.

ANSWER.—No more reason exists for routine use of sedative before a hysterectomy than for any other major operation.

The reasons for a sedative are chiefly three: first, to permit the patient to get a good night's sleep; second, to avoid the preoperative nervous exhaustion period often unnecessarily long, and, third, to permit the use of a smaller amount of anesthetic by its synergistic action. A fourth reason applies when procaine hydrochloride is used for anesthesia: since drugs of the barbital group are natural antagonists, they prepare the patient against a toxic reaction from procaine.

It is good practice to give a small sedative dose of some of the barbital group the night before an operation.

Many surgeons use the barbitals as preoperative preparation, giving one or more sedative doses in patients who tolerate it well. This is particularly indicated when local anesthesia is used. Some caution has been advised in liver damage and it is wise to limit their use in ether and chloroform anesthesia.

Fluids should be forced to the point of satisfying the tissue demand, and the same indication holds true for the preoperative use of alkalis. The excess will normally be excreted. Neither can be ordered for routine use but as a rule it is wise to increase the fluid intake the day before operation, since anxiety may actually limit the normal intake and nervousness may increase the normal excretion.

Since starvation, fever and toxemia tend to produce acidosis, alkalis may be indicated. On the other hand, in the presence of persistent vomiting an actual alkalosis may exist. Obtaining the amount, reaction and specific gravity of the urine is simple and usually a satisfactory method for determining the necessity for alkalis or forced fluids.

The preoperative addition of easily digested starches and sugars to the diet is commonly indicated, especially in operations producing a burden on the liver. Dextrose is frequently given subcutaneously before and after the operation, but tolerance toward it must be watched by repeated urine examination.

Sodium amytal has no demonstrable clinical merit over soluble barbital preparations, which act quickly and may be given by hyperdermic injection.

The intravenous use of this group is contraindicated until tolerance has been established, except in emergencies.

The use of the barbital preparations by mouth is usually satisfactory.

Clinically, phenobarbital and similar preparations in properly adjusted dosage are as satisfactory as amytal for their sedative action. Any of this group apparently may produce marked restlessness and a type of delirium in large doses.

It is probable that other sedatives may be equally satisfactory, but many have more disadvantages than the barbital group.

CAUSES OF HIGH PULSE PRESSURE

To the Editor:—Please give me the causes of high pulse pressure. I have found this condition several times with apparently well functioning aortic valves.

L. S. MacMillan, M.D., Rome, N.Y.

Answer.—The pulse pressure is increased in essential hypertension, in which the systolic pressure is generally increased more than the diastolic; in arteriosclerosis, and hence often in older people; occasionally after severe hemorrhage; in aortic regurgitation, and in myocardial disease associated with pulsus alternans, as a sign of improvement after an attack of cardiac failure, as a precursor of an attack of heart failure because of sudden increase in systolic pressure, and with apparent or actual increase in auricular fibrillation. It is also increased normally after exercise, because of greater elevation of the systolic pressure than the diastolic.

DOSAGE OF COPPER WITH IRON

To the Editor:—May copper citrate be used with Blaud's pills (internal use)? If so, kindly let me know the dosage.

Emilie Breithaupt, M.D., Suifu, China.

Answer.—Yes. In doses of 0.01 Gm., three times daily. There is no convincing evidence that the therapeutic effect is any better than that obtained for administration of iron alone, in the opinion of the Council on Pharmacy and Chemistry.

SUBCUTANEOUS NODULES AND BURSOPATHY

To the Editor:—I have under my care a girl, aged 11, who four months ago noticed swelling of the left knee, with loss of weight and increasing weakness. Examination at that time revealed a bursitis of the left knee. Two months later swellings (enlarged bursae) appeared on the dorsum of both hands and on the right knee and both ankles. The weakness increased and she complained of slight pain and occasional stiffness of the joints, especially the fingers. Examination showed the enlarged bursae of the joints mentioned but was entirely negative otherwise. Kindly advise probable diagnosis and treatment. Please omit name.

M.D., Minnesota.

Answer.—This case appears to belong to the group of synovial swellings, in which is included the condition referred to as Baker's cyst.

Pathologically, some of these cases involve the tendon sheaths, and rice bodies are occasionally found. The cause of this condition is usually infection. The important infections are those which cause rheumatoid arthritis, tuberculosis and syphilis. An article on Syphilitic Bursopathy, by M. J. Morrissey and H. S. Reynolds, appeared in The Journal, April 22.

Considerable information may be obtained by aspiration and biopsy in order to determine the presence or absence of tuberculosis or syphilis. Guinea-pig inoculation and Wassermann and Kahn tests are indicated. The Pirquet test should be made, human and bovine strains being used.

The treatment must be predicated on a diagnosis based on the recommendations made. The correspondent should refer to the works of MacCallum and of Dawson and Boots on subcutaneous nodules.

INDUSTRIAL HAZARD IN MANUFACTURE OF ASBESTOS BRAKE LININGS

To the Editor:—In connection with the manufacture of asbestos brake linings it would seem that the material is passed through a small gas oven measuring 2 feet by 2 feet, which uses a mixture of coal tar 1 part, alcohol 2 parts and bakelite 2 parts. Can you inform me as to whether or not the gas formed by these mixtures would be injurious on inhalation and whether or not the liquid itself would be dangerous on contact with the skin or to wounds?

A. W. Lazenby, M.D., Baltimore.

Answer.—Bakelite is a synthetic resin, commonly dissolved in a mixture of benzene and ethyl alcohol. As a powder it is akin to hexamethylenamine (methenamine), which gives rise to the well known "hex" dermatitis. Its irritant action is largely attributable to formaldehyde derivatives. Coal tar is a heterogeneous mixture of many high boiling point coal fractions. If benzene is used as a solvent or diluent for the bakelite, the vapors present are a potential source of damage after intake through the lungs. The coal tar is only slightly evaporable; but, if evaporation occurs, the vapors produced are conducive to inflammation of the respiratory tract.

The type of alcohol used is not specified but it is assumed to be ethyl. Its vapors in low concentrations may be ignored as a harmful agent.

The mixture as described is to be regarded as a source of dermatitis as its chief harmful property for the human body.

UNBALANCED DIETS IN TURKEY

To the Editor:—I have been working for some years in Turkey, where I have met a number of problems that baffle me. The diet of a large proportion of the patients that come to me consists chiefly of unleavened bread and some form of cracked wheat. This is pieced out among the better off with eggs, milk and fermented milk. For many of them, vegetables and fruit are not available except during a few months in the summer. Most of these people have some sort of gastro-intestinal complaint, which I have considered to be in no small part due to the unbalanced diet. But another great difficulty that I have had was in dealing with the almost constant headache so often complained of. This, too, I have felt had a dietetic basis. The urine almost invariably is highly acid. Rendering the urine alkaline by medication has not been very successful. Moreover, I have hesitated to give too large quantities of soda (for instance) lest the kidneys be injured. Should alkaline medication be useful and if so what form would be least harmful to the kidney? I need hardly say that these people are entirely unable to secure high priced concentrated vitamins to help out their diet.

William L. Nute, M.D., Talas, Turkey.

Answer.—It seems difficult to try to reconstruct a diet along normal lines when the subjects cannot obtain the food constituents of a normal diet. Large quantities of soda or any other alkali should not be given indefinitely, but there is no reason why a moderate amount of any type of alkaline medication would be harmful.

DEPILATORIES AND SHAVING

To the Editor:—I am troubled with a heavy and rapidly growing black beard. I usually shave around 7 o'clock in the morning, and by 1 o'clock that afternoon it is hard to tell that I have ever shaved. Isn't there some form of depilatory that I could use on my face that would be non-irritating? Shaving twice a day is too irritating and I have not been able to find anything in the literature to help me in the form of a depilatory or beard retarder. Kindly omit name.

M.D., Georgia.

Answer.—There is no depilatory less irritating than shaving.

STRENGTH OF MERCURIC OXYCYANIDE SOLUTION FOR CONJUNCTIVITIS

To the Editor:—Please state the strength of mercuric oxycyanide solution usually employed in the eye for conjunctivitis. Kindly omit name.

M.D., Illinois.

Answer.—1:5,000 aqueous solution.

SULPHUR OINTMENT FOR SCABIES

To the Editor:—Often I am in need of a scabicide for my charity patients. Please advise me of the cheapest preparation I can keep on hand to use with this class of patients. There are good scabicides on the market, but they are too expensive for the average patient. Please omit name and address.

M.D., South Carolina.

Answer.—Sulphur ointment, U. S. P.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGOY: *Written.* Boston, Chicago, Cleveland, New York, Philadelphia, St. Louis and San Francisco, Oct. 28. *Oral.* New York, Dec. 15-16. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B Candidates).* The examinations will be held in various cities of the United States and Canada, Dec. 9. Application necessary before Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

ARKANSAS: *Basic Science.* Little Rock, Nov. 6. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Regular.* Little Rock, Nov. 14. Sec., Dr. A. S. Buchanan, Prescott. *Homeopathic.* Little Rock, Nov. 14. Sec., Dr. Allison A. Pringle, Eureka Springs. *Eclectic.* Little Rock, Nov. 14. Sec., Dr. L. L. Marshall, 401 W. 3d St., Little Rock.

CONNECTICUT: *Regular.* Hartford, Nov. 14-15. *Endorsement.* Hartford, Nov. 28. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* New Haven, Nov. 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

FLORIDA: Jacksonville, Nov. 13-14. Sec., Dr. William M. Rowlett, Box 786, Tampa.

MAINE: Portland, Nov. 14-15. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 14-16. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

NEBRASKA: Lincoln, Nov. 22-24. Director, Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, Nov. 6. Sec., Dr. Edward E. Hamer, Carson City.

SOUTH CAROLINA: Nov. 14. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

WEST VIRGINIA: Morgantown, Nov. 16-18. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

Maine July Report

Dr. Adam P. Leighton, Jr., secretary, Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 5-6, 1933. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Fourteen candidates were examined, all of whom passed. Nine physicians were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
Boston University School of Medicine	(1932), (1933, 4)		5
Harvard University Medical School	(1931), (1932), (1933)*		3
Tufts College Medical School	(1931), (1932), (1933)		3
Cornell University Medical College		(1933)	1
Hahnemann Medical College and Hosp. of Philadelphia		(1932)	1
McGill University Faculty of Medicine		(1930)	1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Johns Hopkins University School of Medicine	(1931), (1932)		Maryland
Maryland Medical College	(1910) (1912) New Hampshire		Penna.,
Tufts College Medical School		(1930)	New Jersey
Albany Medical College		(1916)	Ohio
Columbia Univ. College of Physicians and Surgeons	(1911) (1921) District of Columbia		New York,
University of Pennsylvania School of Medicine		(1930)	Vermont

* License withheld.

Louisiana June Report

Dr. Roy B. Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written and practical examination held in New Orleans, June 8-10, 1933. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. Ninety candidates were examined, all of whom passed. Eight physicians were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1932)	78.6
Louisiana State University Medical Center	(1933)* 83.7, 85, 85.8, 86, 86.1, 86.3, 86.4, 87, 87.1, 87.3, 87.5,† 87.8, 88.2, 88.6, 88.9, 88.9, 89, 89.6, 89.9, 90.8, 91		83.2,
Tulane University of Louisiana School of Medicine	(1932) 85.1, (1933) 80, 80.4, 80.7, 81.6, 81.7, 81.8, 82, 82.1, 82.1, 82.1, 82.2, 82.4, 82.8, 82.8, 82.9, 82.9, 83, 83.1, 83.2, 83.2, 83.3,† 83.9, 83.9, 83.9, 84, 84.2, 84.2, 84.2, 84.4, 84.4, 84.4, 84.4, 84.6, 84.7, 84.9, 84.9, 85.1, 85.4, 85.4, 85.4, 85.6, 85.6, 85.8, 85.8, 85.9, 86, 86.6, 86.8,† 87.3, 87.3, 87.6, 87.7, 87.7, 88, 88.2, 88.3, 88.4, 88.4	(1931)	84.2,
Creighton University School of Medicine		(1932)	84.8
University of Cincinnati College of Medicine		(1929)	86.8
University of Oklahoma School of Medicine		(1929)	80.8
University of Pennsylvania School of Medicine		(1928)	87.3
Meharry Medical College		(1932)	‡
University of Toronto Faculty of Medicine		(1931)	89.1†
Universidad Nacional Facultad de Medicina, Mexico		(1932)	82.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
State University of Iowa College of Medicine		(1923)	Iowa
University of Georgia Medical Department		(1927)	Georgia
Tulane University of Louisiana School of Medicine		(1931)	Alabama
Johns Hopkins University School of Medicine (1924),		(1929)	Maryland
University of Maryland School of Medicine		(1906)	N. Carolina
University of Michigan Medical School		(1929)	Michigan
Vanderbilt University School of Medicine		(1929)	Tennessee

* These applicants have completed their medical course and will receive their M. D. degree and Louisiana license on completion of internship.
† License withheld pending completion of citizenship.
‡ Average grade not reported.

Book Notices

The Principles and Practice of Otology. By F. W. Watkyn-Thomas, F.R.C.S., B.Ch., Surgeon, Central London Throat, Nose and Ear Hospital, and A. Lowndes Yates, M.C., M.D., F.R.C.S., Honorary Assistant Surgeon, Ear and Throat Department, Prince of Wales Hospital. Cloth. Temporary price, $6.25. Pp. 555, with 199 illustrations. Baltimore: William Wood & Company, 1933.

Otologists will enjoy reading this book. The text embraces the individual ideas of each of the authors. The section on surgical anatomy of the ear is excellent. The illustrations are largely different from those of the familiar treatises. They are derived chiefly from the works of J. E. Frazer and from Corning. There is an excellent chapter on the ear and balance, and a good presentation of the subjects of hearing and the tests of hearing. One could, if so minded, find things to complain of. There are mistakes, such as the discussion of ligation of the external jugular vein when the internal jugular vein is meant. References to the literature follow each chapter. Many of them are of abstracts published in English journals. Were the references to the original article included, much time would be saved for one pursuing information. The authors adopt the method of testing hearing advocated by the Hearing Test Committee of the Royal Society of Medicine. It is a unitary system depending on the determination of the half intensity period of the tuning forks used. In this country a similar method has been advocated by Harvey Fletcher, using in the calculation the constant of damping or decrement of each fork as determined by the Bureau of Standards. All these methods lead to increased accuracy in the testing of hearing defects, but it seems highly desirable that some one method be adopted and used universally by otologists. One can also question the importance of local measures in the treatment of many types of progressive deafness. However, these complaints are minor when one considers the fresh point of view, the excellent and unfamiliar illustrations and the large amount of valuable information in a relatively compact work. Every English-speaking otologist should possess this book, from the use of which he will derive much pleasure and benefit.

Précis d'anatomie pathologique. Par Gustave Roussy, professeur à la Faculté de médecine de Paris, Roger Leroux, professeur agrégé à la Faculté de médecine de Paris, et Charles Oberling, professeur agrégé à la Faculté de médecine de Paris. In two volumes. Cloth. Price, 175 francs, per set. Pp. 1344, with 586 illustrations. Paris: Masson & Cie, 1933.

In the past century, few authoritative textbooks or treatises on pathologic anatomy have been published or edited by French authors. The modern student of this subject has been compelled to consult books written in German or English. The present work therefore marks a noteworthy contribution to French medical publications. Professor Roussy, who has been head of the department of pathology in the University of Paris since 1910, and his assistants, have collaborated to produce one of the best treatises on pathologic anatomy published in any language. The two volumes are divided into eight sections. The first two sections consider the fundamental lesions of tissues of human beings and the circulatory disturbances. The third and fourth sections deal with inflammation in general and the inflammatory conditions in the special organs. The last four sections are concerned with the general and special details of new growths. The attempt to include all diseases under the three headings of circulatory, inflammatory or neoplastic lesions encounters noteworthy difficulties. For example, there is an almost total absence of consideration of developmental anomalies or defects. Certain diseases, such as diabetes, hypertension, vitamin disturbances and endocrine disturbances,

can hardly be treated adequately under any of these three headings. Of necessity there is considerable duplication, but the discussion under paragraph headings is clearly outlined and simply arranged.

The pathologic changes of thrombosis, inflammation, tuberculosis, tissues of the nervous system and carcinoma have been given particularly thorough review. Under "inflammation" the authors conclude their discussion (p. 250) of its significance by this strictly scientific statement: "Inflammation presents itself, just as all other biologic phenomena, as a series of causes and effects. These actions and reactions without doubt are controlled by definite laws. It is these laws and not their philosophic interpretation which the biologist must recognize." As a rule their point of view is orthodox according to the modern teachings of pathologic anatomy, but a few exceptions may be noted. For example, functional hypertrophy of striated muscles is said to result from both division and increase in size of the fibers (p. 488). In the discussion of the etiology of cirrhosis of the liver (p. 808), alcohol is still given a primary place. Germinal centers are mentioned in lymph nodes, with no intimation of any other significance they may possess. Gastric mucus is believed to differ from intestinal mucus in that it does not stain with mucicarmine (p. 575). In the discussion of colitis (p. 938) there is no mention of the chronic ulcerative colitis caused by the diplococcus described by Bargen.

Few actual errors have been overlooked. The Greek word from which cirrhosis is derived is translated (p. 802) as meaning "red" (roux) instead of its real meaning, "tawny yellow." The one reference to any medical work is to that of Laënnec (p. 806) and the year of publication is given as 1927. The principal defect is the lack of references to the literature. Various names of individuals are placed in parenthesis after certain facts or theories have been stated, but there is no indication as to where their publications may be found. As would be expected, a large number of these are French writers, but German, English and American authors are also freely mentioned. The illustrations are really magnificent. Most of them are drawings, probably the best that any pathologic anatomy up to the present time has been able to produce. This is especially true of the splendidly accurate pictures of histologic lesions. They are abundant and extremely well chosen. The paper on which the book is printed is of good quality. Certainly these two volumes will take their place as worthy examples of the many medical classics produced by French authors and sponsored by French publishers.

The Biochemistry of Medicine. By A. T. Cameron, M.A., D.Sc. F.I.C., Professor of Biochemistry, Faculty of Medicine, University of Manitoba, and C. R. Gilmour, M.D., C.M., F.R.C.P., Professor of Medicine and Clinical Medicine, University of Manitoba. Cloth. Temporary price, $5.50. Pp. 506, with 31 illustrations. Baltimore: William Wood & Company, 1933.

Here is a book that contains the medicine one would like to find in a textbook on physiologic chemistry and that contains, more particularly, just the amount of chemistry, and no more, that one would like to find in a clinical textbook. The result is a pleasant, palatable and painless dose of chemical information for the progressive practitioner. The authors designed the book for the student of medicine receiving clinical instruction in the later years of his course, and for the physician who at school received little or no special instruction in the medical application of biochemistry. A large proportion of the current medical literature concerns itself with biochemical studies in the presence of disease, a comprehension of which is necessary for him who would keep abreast of modern scientific advances. The authors have kept their promise to express the chemical point of view as simply as possible. The book is in no sense a manual of practical clinical chemistry but a work that should enable the physician to coordinate biochemistry and clinical medicine for the solution of everyday problems of practice. In the first chapter, of twenty pages, is compressed an "outline of human biochemistry." Other chapters are devoted to the normal and abnormal metabolism of carbohydrates, fats, proteins, water, inorganic compounds and ions. Still other chapters deal with respiration and respiratory disorders, the organic compounds of the blood, their function, and the diseases associated with them; the endocrine secretions, vitamins and vitamin deficiency diseases; and, lastly, notes on the biochemistry of a group of unrelated conditions, such as the toxemias of pregnancy, burns and poisons, hypertension, tuberculosis and tumor. At the end of each chapter is a summary and an ample list of the pertinent references from recent literature. An improvement would be a handy outline of normal values for the various blood chemicals discussed. By relegating chemical formulas and details of laboratory technic to footnotes, the authors have retained for the work the character of being primarily a clinical textbook. The subject index bears out, even more than the table of contents, the book's right to be so classed. At least a third of its more than 500 indexed subjects are conditions of disease. Comprehensive, yet concise, the book's subtitle might almost be "the biochemistry of medicine made easy"; at least it is made easy reading.

Diseases of Infancy and Childhood. By Leonard G. Parsons, M.D., F.R.C.P., Professor of Diseases of Children in the University of Birmingham, and Seymour Barling, C.M.G., F.R.C.S., Professor of Surgery in the University of Birmingham, Birmingham, England. In two volumes. Cloth. Price, $25 per set. Pp. 1798, with illustrations. New York & London: Oxford University Press, 1933.

The scope of this work is rather ambitious, as it attempts to cover in two volumes the medical as well as the surgical aspects of the diseases of infancy and childhood. The authors have attempted to delete all tedious and wordy discussions, but in a book of this type it is difficult to maintain the proper balance of subjects. The editors have succeeded fairly well, considering their task. The contributors have been carefully selected and are well qualified to write on their respective subjects. A few Canadian and American pediatricians appear in the list of contributors. E. A. Park and Martha Eliot have written the chapter on rickets, and Shipley covers the chapter on scurvy. The list of English contributors is impressive, and only a few of the better known men are omitted. The discussions for the most part are direct and concise. When disease processes are discussed, only such basic principles are included as will elucidate the subject under consideration. There is an attempt to cover the subject from a clinical standpoint as much as is possible. The preventive as well as the curative aspect of pediatrics is considered. Diagnosis and treatment is stressed throughout the text. Most of the subjects are adequately covered in a concise manner. The prospective purchaser might assume that because the work appears in two volumes the various subjects are covered in greater detail than in a single volume. The greater length of the work is undoubtedly due to the fact that the surgical disorders of infancy and childhood receive the same thorough but concise treatment as the medical conditions with which they are associated. This applies to surgery of the eye and ear as well as to orthopedic and general surgery. This work is notably free from antiquated data. The text shows the mark of careful editing and organization. The illustrations are clear but appear inadequate in some sections of the book. The reproductions of roentgenograms are particularly commendable and are the best that have appeared in a pediatric textbook. After each discussion a few well chosen references are given, so that the reader may amplify the information if he so desires. The book will be of special value to clinicians as a concise and modern reference work on practically all the aspects of diseases of infancy and childhood. It is not a complete system on pediatrics but may serve a useful purpose as it is presented.

The Mode of Action of Drugs on Cells. By A. J. Clark, B.A., M.D., F.R.C.P., Professor of Materia Medica in the University of Edinburgh. Cloth. Price, $6.25. Pp. 298, with 62 illustrations. Baltimore: Williams & Wilkins Company, 1933.

In this volume, Dr. Clark has collected and summarized the available data bearing on the fundamental problem of pharmacology; namely, the nature of the reaction between the drug molecule and the cell. This problem is not alone the most fundamental but is also still the most elusive and poorly understood in the whole field of drug research. The author's approach to an understanding is through the methods of quantitative pharmacology and statistical analyses of the results obtained. Some of the methods employed are: (1) microinjection experiments, (2) quantitative estimates of drugs fixed on cell surfaces and entering the cells, (3) measurements of the rate of action of drugs, (4) measurements of the rate of washout of drugs, and (5) experiments showing the existence of active patches or receptors on the cell surface. The question of individual variation and its relation to drug action and idio-

syncrasy is discussed. The skewing of normal characteristic curves relating to drug dosage and response is explained on this basis; it would thus be more correct in certain types of bioassay to express asymmetrical deviation as $+10-5$ instead of ± 5. Various theories regarding the mode of action of hormones, vitamins and drugs are presented and analyzed in the light of existing data. It is shown that although certain drugs may be said to act by adsorption, or differential solubility, nevertheless the exact nature of the chemical reactions involved is far from being understood and that all the existing theories are inadequate in several respects. The influence of radiations, including heat, on living cells and the drug action thereon, is discussed in some detail. The material is presented in an interesting and readable manner and can be recommended as a brief survey of a detailed and difficult field. The extensive bibliography that follows each section makes the volume a valuable reference book, especially to the experimental pharmacologist.

Atlas der klinischen Elektrokardiographie mit Anleitungen zur Differentialdiagnose. Von Dr. Wilhelm Dressler, Assistent der "Herzstation" in Wien. Paper. Price, 14 marks. Pp. 112, with 134 illustrations. Berlin: Urban & Schwarzenberg, 1933.

This collection of electrocardiograms is intended for the specialist already familiar with the elements of electrocardiography. It endeavors to show several curves of each of the various types of myocardial damage and arrhythmias. The electrocardiograms are placed on the page opposite their description, thereby permitting the reader to interpret the electrocardiograms himself before reading the author's evaluation. No attempt is made to explain in detail the cause of the various changes seen or the mechanism of the various arrhythmias. The legends are complete and contain, when essential, a brief clinical report of the case. The author also outlines the manner in which the electrocardiographic diagnosis is arrived at. In making the electrocardiographic diagnosis, emphasis is placed on certain simple tests, such as exercise and carotid sinus pressure. A differential diagnostic index is appended. The method of analyzing the arrhythmias is excellent and complete. Stress is laid, however, on the more unusual types of arrhythmias. The author still uses the classic terminology in bundle branch block and attempts to localize ventricular extrasystoles, procedures that are not generally followed today. The illustrations of electrocardiograms in coronary occlusion are not as typical as might have been used, and the author fails to make clear that in many of these curves the electrocardiographic diagnosis of coronary occlusion is made on the basis of the clinical history, which is not the usual procedure. Most authorities would consider one of the curves used to show right axis shift to be normal in configuration. But these are minor criticisms compared to the splendid handling of the majority of the electrocardiograms. This book can be highly recommended for the cardiologist wishing practice in interpreting the more unusual arrhythmias.

The Dynamics of Therapy in a Controlled Relationship. By Jessie Taft. Cloth. Price, $2.50. Pp. 294. New York: Macmillan Company, 1933.

For obscurity of diction, this book might easily take a prize. To quote the author verbatim (p. 288): "Relationship therapy, then is nothing but an opportunity to experience more completely than is ordinarily possible the direction, depth, and ambivalence of the impulses which relate the self to the other, to outer reality, and to discover first-hand the possibility of their organization into an autonomous, creative will." Or this: "The therapist, who agrees to live for this limited time in the interest of his patient, who gives up temporarily the projection of personal needs and impulses in order to allow the patient to work through his own unmolested, provides an opportunity which is unique and irresistible in that it permits a realization of wholeness and security as part of a protecting supporting medium like nothing in human experience unless it be the intrauterine existence. Many patients realize in this relationship for the first time a kind of cosmic ecstasy far beyond the sexual like that which the mystics describe, a oneness with life, an harmonious flowing into reality." The body of the book is occupied by the verbatim record of two problem children, a seven year old boy and a seven year old girl, whose problems she helps partially to solve by tactics that nurse maids have discovered long ago: letting the youngster believe it is having its own way and then checking it when it goes too far. That there is something in this kind of therapeutic relationship cannot be denied; but the author has neither discovered it nor clarified its dynamics, unless one considers "a sense of wholeness and security like that experienced in intrauterine existence" an elucidation.

Operative Surgery. By Alexander Miles, M.D., LL.D., F.R.C.S., Consulting Surgeon, Royal Infirmary, Edinburgh, and D. P. D. Wilkie, M.D., F.R.C.S., Professor of Surgery, University of Edinburgh. Cloth. Price, $5.25. Pp. 590, with 321 illustrations. New York & London: Oxford University Press, 1933.

The authors have covered the subject in more than a satisfactory manner. Of course, operative surgery is so extensive and the technics so varied that a good deal of condensation had to be done, and the book cannot be called absolutely complete. Yet it fulfils the purpose for which it was written—to serve "as a guide to undergraduates in their class of operative surgery and in the hospital, and to young graduates in their practice." The plan of the work is that usually followed in textbooks of this type. The first nine chapters deal with the surgical principles and operations pertaining to tissues in general, such as the blood vessels, lymph glands, peripheral nerves, bones and joints. The remaining twenty-five chapters discuss the technic of operations on the various organs of the body, including those of the face, mouth and air passages, with the exception of the female generative tract. An interesting and valuable feature of the volume is the short section on the surgical anatomy of the subject subsequently discussed, which is placed at the beginning of almost every chapter. The work is concise and excellently written. The material is well selected, clearly illustrated and practical. Because of lack of space, the methods selected for description are those most favored by the authors and their collaborators, and of course represent present-day practice in the Edinburgh school.

La tuberculose du lobe azygos. Par R. Le Bourdellès, professeur agrégé du Val-de-Grâce, et J. Jalet. Bibliothèque de phtisiologie sous la direction de Léon Bernard, professeur de clinique de la tuberculose à la Faculté de médecine de Paris. Paper. Price, 40 francs. Pp. 159, with 70 illustrations. Paris: Masson & Cie, 1933.

This describes the supernumerary pulmonary lobes and the accompanying roentgenographic changes in health and disease. Accepting Aeby's definition, the authors hold that a lobe is that part of the lung extending to the pleura and depending on one or more primary bronchi and separated from other lobes by a pulmonary fissure. The azygos lobe is therefore not a true lobe like the cardiac and posterior middle lobes. The history of the development of knowledge of the azygos lobe, from its first description by Wrisberg in 1778, is fully given as well as its embryologic development, dependent on a higher entrance than normally of the azygos vein into the vena cava, which forces the pulmonary buds to grow around instead of pushing the vein to one side. The vein then comes to lie at the bottom of a fissure with the surfaces separated by two layers of visceral and two of parietal pleura, ending at a point in the true interlobar fissure. The resulting azygos lobe may be large when the curved fissure is more horizontal or small when more nearly vertical. At a point near the apex the pleura is thickened in a falciform manner, which explains the triangular shadow there. The hairlike line concave to the left curves down toward the hilus and ends in a sharply defined comma-like shadow. The small twisted bronchus supplying the lobe favors the development of atelectasis. The lobe is stated to be present in 0.5 per cent of roentgenograms of the chest. Details, variations and technic are thoroughly discussed. When a tuberculous process involves the right upper lobe, the azygos lobe may escape or it alone may be involved. Pleurisy with or without effusion may involve only the fissure. In artificial pneumothorax, the fissure may be inflated with air. Excellent illustrations make these points clear. In a final chapter, tuberculosis in other supernumerary lobes is discussed. The lobe of Rokitansky, a small isolated mass of fetal or atelectatic lung tissue, completely isolated or attached to the left lower lobe, occasionally situated extrathoracically, is rare. The cardiac lobe, a portion of the lower lobe, usually on the right, is more common. Its fissure, more clearly revealed by special technic, extends as an extremely fine line from the hilus to the diaphragm. Tuberculosis may involve this lobe while

the remainder of the lower lobe escapes. The occurrence of bronchiectasis and atelectasis of this lobe is not stressed. One case of tuberculosis of the left azygos lobe is reported and attention called to the manner in which it differs from the right. The volume can be recommended to all students of roentgenography and tuberculosis.

Broadcasting Health. By J. Mace Andress, Ph.D., and I. H. Goldberger, M.D., Assistant Director of Health Education, New York City Public Schools. The Story Series in Health. Cloth. Price, 80 cents. Pp. 401, with illustrations. Chicago: Ginn & Company, 1933.

The purpose of this volume is to provide pupils in the grades with an elementary survey of the field of nutrition and with special suggestions on training in wholesome attitudes on foods and food habits. There is, of course, far more to health than merely nutrition, but present-day methods have concentrated on nutrition in health teaching in the public schools. The volume begins with a simple statement concerning energy and its development. It covers all the current knowledge concerning water, air, minerals, the vitamins and then the specific food substances. It discusses the place of alcohol, tobacco, coffee, tea and condiments in the ordinary diet, much of the material being brought out by the conversational method. Most of the points of view are distinctly rational. The book is copiously illustrated with well selected photographs and includes also a glossary of definition and pronunciation of medical terms.

Die weiblichen Sexualhormone in ihren Beziehungen zum Genitalzyklus und zum Hypophysenvorderlappen. Von Dr. C. Clauberg, Privatdozent an der Universitäts-Frauenklinik Königsberg i. Pr. Paper. Price, 22 marks. Pp. 191, with 103 illustrations. Berlin: Julius Springer, 1933.

The author divides his discussion of the field of the female sex hormones into several sections: (1) the histology and physiology of the genital cycles of the laboratory animals and man, (2) the follicular hormone, (3) the corpus luteum hormone, (4) the relationship of the follicular and luteal hormones, (5) the relationship of the ovarian hormones and hormone of the anterior lobe of the hypophysis, (6) and the hormonal diagnosis of pregnancy and chorion epithelioma. The book is profusely illustrated, mainly from the author's own experiments. Interesting ideas regarding the relationship of the sex hormones are advanced. The effects of hypersecretion of the follicular hormone and the hyposecretion of the luteal hormone are discussed. The author has spent much time investigating the corpus luteum hormone. This section of his book appears to be much better than the others. The book cannot be recommended to readers who wish to obtain an accurate picture of contributions of the various investigators of the female sex hormones. For example, though the discussion of the vaginal smear method of assay occupies six pages, Allen and Doisy, who introduced it, are not mentioned. Furthermore, the reference to that work is not given in the bibliography. Another error, equally glaring, is the failure to state that Doisy and his collaborators isolated the first crystalline follicular hormone. Many instances of this character could be given but it is hardly necessary.

A Text-Book of Neuropathology. By Arthur Weil, M.D., Associate Professor of Neuropathology, Northwestern University Medical School, Chicago. Cloth. Price, $5. Pp. 335, with 260 illustrations. Philadelphia: Lea & Febiger, 1933.

This compact textbook discusses the pathology of the nervous system from a broad biologic standpoint and is to be commended for this, but a perusal of the book will convince one that the pathology of the nervous system is still largely histopathology. This phase of the subject is adequately and clearly presented in concise form suitable for students. The first chapter is valuable for one beginning the study of neuropathology. After four chapters on general neuropathology, the separate diseases are taken up briefly but adequately. The chapters on inflammations and intoxications are particularly to be commended. The chapter on tumors is adequate, in contrast to European books on the same subject. One should note that the appendix on staining methods is not meant to be a complete laboratory manual. The literary style is decidedly Germanic. It is a pity that neuropathology cannot be cleared of German words and phrases that are readily translated into English. This book can be heartily recommended as an authoritative introduction to its subject.

Les conjonctivites folliculaires. Rapport présenté au 46e congrès de la Société Française d'Ophtalmologie le 27 juin, 1933. Par V. Morax. Société Française d'Ophtalmologie. Paper. Pp. 142, with 22 illustrations. Paris: Masson & Cie, 1933.

The author defines follicular conjunctivitis as an inflammation of the ocular mucous membrane, characterized by hyperemia, lacrimation, secretion, and the formation of follicles in the transitional folds of the conjunctiva. That gave him a fairly wide latitude, on which he proceeded to elaborate with the thoroughness that has always been synonymous with the name of Morax. Some twenty odd pages are given over to the historical phase of the subject, followed by a nearly similar number of pages of clinical description. Particular emphasis is laid on the condition known as swimmers' conjunctivitis and the investigations of the etiologic factors of that disease. This, of course, leads into an elaborate discussion of the Prowaczek bodies and their relationship to inclusion blennorrhea and to trachoma. Then follow the description and differential diagnosis of trachoma and the various other forms of follicular conjunctivitis. Treatment is dismissed with a disdainful gesture in one and a half pages. The conclusion is that there are four main types of follicular conjunctivitis: trachoma, swimmers' conjunctivitis, acute conjunctivitis with follicles, and chronic follicular conjunctivitis. An elaborate and complete bibliographic index completes this interesting brochure. The colored illustrations are somewhat better than fair, but the black and white ones are rather indifferent. The booklet represents an enormous amount of work, both clinical and literary, and is well worth the attention of the clinical ophthalmologist.

Le disque intervertébral: Physiologie, pathologie, indications thérapeutiques. Par G. Maurie. Préface de Pasteur Vallery-Radot. Paper. Price, 35 francs. Pp. 195, with 45 illustrations. Paris: Masson & Cie, 1933.

In this monograph the author presents the anatomy, embryology, physiology, pathology, radiologic aspects and therapeutic indications concerning the subject of intervertebral disks. The works of Luschka, Hueck, Schmorl and Junghanns, Calvé and Galland and Beadle and others are reviewed. The illustrations are generally good, especially the pathologic sections. This is an important subject and has recently experienced a well deserved awakening of interest.

Internal Derangements of the Knee-Joint: Their Pathology and Treatment by Modern Methods. By A. G. Timbrell Fisher, M.C., M.B., Ch.B., Surgeon (With Charge of Out-Patients), Seamen's (Dreadnought) Hospital, Greenwich. Second edition. Cloth. Price, $3.50. Pp. 205, with 120 illustrations. New York: Macmillan Company, 1933.

This monograph is based on a careful clinical and experimental study of the internal derangements of the knee joint. Special emphasis is placed on the application of therapeutic measures founded on accurate knowledge of structure, function and disease. The value of manipulation and its place in the treatment, particularly of injuries and adhesions, are well discussed. The section on internal derangements due to damaged or diseased semilunar cartilages takes up a large part of the book and gives a comprehensive yet brief description. There is a short history of the subject of internal derangements and a brief discussion of the surgical anatomy, physiology and mode of production of the derangements of the knee joint. The pathology, symptoms, differential diagnosis and treatment are clearly described. Other varieties of internal derangement are outlined more as a summary of the author's experience and studies rather than in a detailed form. An appendix of notes by Sir Robert Jones is of especial interest because it is probably his last. The author is to be credited with a classic summary of his experience and for including only the essentials.

The International Medical Annual: A Year Book of Treatment and Practitioner's Index. 1933. Fifty-First Year. Edited by Carey F. Coombs, M.D., F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc. Cloth. Price, $6. Pp. 572, with 159 illustrations. Baltimore: William Wood & Company, 1933.

This medical annual is now in its fifty-first year. It begins with a review of a year's work in therapy. It provides incidentally an obituary notice of Dr. Carey F. Coombs, who died this year and who was for fourteen years editor of this publication. The volume is contributed to by a great number of writers selected by the editors, all of them British and all of

them well known for work in the fields to which they contribute. It has a fine index and is fully illustrated with many plates, some of them in colors, most of them borrowed from current periodicals. The book constitutes a good reference work, particularly for those who want the latest word on any medical subject.

Inorganic Colloid Chemistry. Volume I: The Colloidal Elements. By Harry Boyer Weiser, Professor of Chemistry at The Rice Institute. Cloth. Price, $4.50. Pp. 389, with 54 illustrations. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd., 1933.

This gives a good critical survey of the colloidal behavior of elements and their inorganic compounds, with particular reference to their rôle in the development of colloid science. It is concerned primarily with the methods of formation, properties and application of the elements in the colloid state, which includes their uses or their tentative uses in medicine. The elements included are gold, silver, copper, mercury, alkalis and alkaline earths, lead and miscellaneous colloidal metals including antimony, the iron and platinum families and the nonmetallic elements carbon, sulphur, selenium, tellurium and iodine. The essentials of this part of colloid chemistry are presented in a clear, concise, accurate style, with numerous references to the literature. The therapeutic discussions, however, give one the impression of a chemist, with the will to believe, peeking at medicine through the keyhole. The facts are that most of the reported benefits of colloidal therapy do not withstand reasonable criticism. The book is instructive and stimulating and it may be studied with profit by medical men without especial training in mathematics or chemistry.

Medicolegal

Malpractice: Injury Attributed to Physician's Absence During Childbirth.—The plaintiff employed the defendant to attend her in childbirth. When delivery seemed imminent he directed her to go to a hospital. He examined her there, about 10:30 o'clock, p. m., and concluded that the baby would not be delivered before the following day. After instructing the nurses and attendants to telephone to him at once if a change occurred, he went home. Shortly after midnight he received a call, but although he arrived at the hospital within about ten minutes the birth was already about completed. He assisted only in the last stages. The defendant attended to plaintiff while she was in the hospital and discharged her at the usual time. The plaintiff instituted her suit when, according to her testimony, she developed uterine trouble, which she attributed to the defendant's failure to attend her during the entire time of her labor. The trial court directed a verdict in favor of the defendant, and the plaintiff appealed to the Court of Appeals of the District of Columbia. The evidence, said the Court of Appeals, discloses no testimony to show that the absence of the physician was the proximate cause of the plaintiff's trouble. There is testimony that her condition may have been caused by the childbirth, but there is no evidence to show that if the defendant had been present and exercised reasonable professional skill the result would or could have been different. The Court of Appeals affirmed the judgment of the court below.—*Bonner v. Conklin (District of Columbia), 62 F. (2d) 875.*

Insurance: "Totally and Permanently Disabled" Construed.—The defendant insurance company issued a policy by which it agreed that if the plaintiff should become disabled by bodily injury or disease so as to be permanently, wholly and continuously prevented from engaging in any occupation whatever, for remuneration, it would, during the continuance of such disability, waive the payment of the premium on the policy and pay the insured a stated monthly benefit. About June 27, 1929, the plaintiff became totally disabled. On October 19, the same year, he presented to the defendant insurer proof of total and permanent disability dating back to June 30. When this proof was presented, neither the plaintiff nor his physician knew how long disability would continue, but on or about June 1, 1931, disability ceased and the plaintiff resumed the practice of his profession. The insurer refused to pay the benefits promised by the policy, and the plaintiff brought suit, Oct. 1, 1931. It was conceded that during twenty-three months the plaintiff was totally disabled. The defendant contended, however, that the disability was not permanent, because it had ceased before the suit was commenced, and that therefore the plaintiff was not entitled to the agreed benefits.

The word "permanent," as used in this insurance contract, said the Supreme Court of Minnesota, is to be construed according to its nature and in relation to the subject matter of the contract. The insurer agreed to waive the payment of premiums and to make monthly payments "during the continuance of such disability," which does not indicate that the insurer meant that the disability must continue until the insured died. The policy authorized the insurer to demand of the insured from time to time new proof of continuing disability, and this, the court believed, implied that the insurer contemplated that disability might terminate. As was said by the Supreme Court of Georgia in *Penn Mutual Life Ins. Co. v. Milton*, 160 Ga. 168, 127 S. E. 140, in construing an insurance policy similar to this one,

> This language clearly indicates that the insurer meant that the total disability, on proof of which it would grant the benefits named, was not one which might last during the entire life of the insured, but one which might end prior to his death.

We are of the opinion, said the Supreme Court of Minnesota, that the authorities support the conclusion that, in insurance parlance, in such a policy as that now before us the words "totally and permanently disabled" contemplate a disability which reasonably satisfies a fair and impartial mind that the insured is then totally disabled and may reasonably be expected to continue in that condition for at least an indefinite period of time. If a person insured under such a policy has been totally disabled for sixty days and proves by competent evidence the nature and character of his disability and that it will probably continue, or may continue, for life, or that it may reasonably be expected to continue indefinitely, he is entitled to recover instalment payments as one who is totally and permanently disabled. Subsequent recovery, even before trial, does not destroy the insured's cause of action, though it does terminate the accrual of subsequent instalment payments under the policy.

The order of the court below, directing a verdict in favor of the defendant insurer, was reversed.—*Maze v. Equitable Life Ins. Co. of Iowa (Minn.), 246 N. W. 737.*

Workmen's Compensation Acts: Compensability of Pneumonia.—The industrial commission of Wisconsin awarded Hatfield, an employee of the Yellow Cab Company, compensation under the workmen's compensation act, because it found that he had contracted pneumonia out of and incidental to his employment. The Yellow Cab Company appealed to the Supreme Court of Wisconsin. The expert medical testimony given before the industrial commission, said the Supreme Court, warranted the commission in finding that, although pneumonia germs are prevalent in the throats and noses of many normal persons, pneumonia does not result unless the germs invade the lungs and multiply there. This occurs from a lowering of resistance, which may be due to exposure, alcoholism and reduced vitality following an operation. The commission was warranted in finding also that the claimant's exposure was the logical cause of the lowering of his resistance, which caused the development of pneumonia. Clearly the claimant's pneumonia was incidental and fairly traceable to his employment; he would not have been equally exposed to it apart from his employment. Likewise the chances of the growth of the pneumonia germs and of the resulting pneumonia were substantially increased by the services which he was obliged to render. The fact that such a hazard is incidental also to all similar outdoor activities is no reason for denying the claimant the benefits of the workmen's compensation act. The judgment of the lower court, affirming the award, was therefore affirmed.—*Yellow Cab Co. v. Industrial Commission (Wis.), 246 N. W. 689.*

Compensation of Physicians: License a Prerequisite to Recovery of Compensation.—Where the law requires a person who practices a profession, such as medicine or pharmacy, to obtain a license, one who practices without having obtained such a license cannot recover compensation for services so rendered.—*Horsey v. Baker (Iowa), 246 N. W. 653.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, Richmond, Va., Nov. 15-17. Dr. Henry E. Meleney, Vanderbilt University School of Medicine, Nashville, Tenn., Secretary.
Association of American Medical Colleges, Minneapolis, Oct. 30-Nov. 1. Dr. Fred C. Zapffe, 5 South Wabash Avenue, Chicago, Secretary.
Central Society for Clinical Research, Chicago, Nov. 3. Dr. Lawrence D. Thompson, 903 University Club Building, St. Louis, Secretary.
Inter-State Postgraduate Medical Association of North America, Cleveland, Oct. 16-20. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.
Medical and Surgical Association of the Southwest, El Paso, Texas, Dec. 7-9. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.
Oregon State Medical Society, Portland, Oct. 26-28. Dr. Albert W. Holman, 364 Washington Street, Portland, Secretary.
Pacific Coast Society of Obstetrics and Gynecology, Portland, Oregon, October 19-21. Dr. Clarence A. DePuy, 230 Grand Avenue, Oakland, California, Secretary.
Southern Medical Association, Richmond, Va., November 14-17. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Virginia, Medical Society of, Lynchburg, Oct. 24-26. Miss Agnes V. Edwards, 1200 East Clay Street, Richmond, Secretary.
Western Surgical Association, Cincinnati, Dec. 8-9. Dr. Frank R. Teachenor, 306 East 12th Street, Kansas City, Mo., Secretary.

SECOND CONFERENCE ON RHEUMATIC DISEASES

Held under Sponsorship of the American Committee for the Control of Rheumatism, Milwaukee, June 12, 1933

(Concluded from page 1184)

Nutritional Aspects of Chronic Arthritis

DR. A. A. FLETCHER, Toronto: There is little evidence of metabolic disease among arthritic patients. Almost all chemical studies give normal results. A few women with osteo-arthritis seem to show an inherent tendency to become heavy, particularly after the menopause. Control of their weight is helpful, whether the disease is inflammatory or degenerative. A lowered metabolic rate occasionally contributes to increase in weight. In atrophic arthritis, maintenance of weight is difficult, sometimes impossible. This tendency to loss of weight may be constitutional or may be associated with chronic infection or gastro-intestinal dysfunction. At times, a diet high in calories, and insulin, seem useful. There is little evidence that disturbance in metabolism of uric acid occurs in arthritis independent of gout. It has been asserted that some patients with arthritis are sensitive to acid, but there is no chemical support for this statement, and it is doubtful whether the so-called alkaline diets are based on any true metabolic principles. In the belief that the process in rheumatoid arthritis is an exudative one, restriction of salt and water has been advised by Straus, Berkhart and Gerson in Germany, and by others. An allergic reaction to some food may be present in the occasional case.

There is experimental evidence that faulty nutrition, particularly during prenatal life and adolescence, may lead to states of subnormal health conducive to disease in later life. In cases of atrophic arthritis, the frequently asthenic build, loss of weight, nervous instability, and tendency to premature aging might be considered nutritional phenomena. The motor disturbances of the gastro-intestinal tract, atony, ptosis, and lack of haustral markings in the colon as seen in chronic arthritis may be due to deficiency of vitamin B and excess of carbohydrate. At times, diets high in vitamin and low in carbohydrate will reestablish normal tonus of the bowel. Atony of the colon can be produced experimentally in rats with a fair degree of certainty with diets high in carbohydrate and low in vitamin B_1. The colon also becomes longer and the ileocecal valve markedly incompetent. The longer this condition persists, the more difficult it is to restore its tonus. In time, such deficiency goes on to atrophy and metaplastic change in the mucous membrane.

The person who is disposed to, or who is suffering from, rheumatoid arthritis must live a protected existence. Just as he is liable to fatigue, vulnerable to strain, susceptible to infection, and poorly adaptable to environment change, so he does badly on diets of poor quality and does well on protective diets. At times the gastro-intestinal tract has a more immediate causal relationship to the disease, such as in the arthritis of bacillary dysentery and of ulcerative colitis. Other conditions occur in the gastro-intestinal tract the significance of which is not so well established: disturbance in motility, the presence of nonspecific inflammatory conditions in the bowel, aberrations of intestinal flora, and the presence of organisms productive not only of fermentation and putrefaction but of more invasive ones, such as hemolytic streptococci. There has been, in this country, much resistance to accepting the belief that such processes may play any part in the cause of arthritis. These intestinal disorders are seen among patients who do not have arthritis. Other factors must be necessary for the arthritis. Probably one of the essential factors is injury to the mucous membrane from an impaired nutritional state.

There is no agreement as to what measures are applicable for the treatment of deranged bacterial flora. Colonic irrigations, laxatives, rough diets, vaccines or the implantation of bacteria are extensively used, at times with relief. Foul stools, indicative of proteolysis in the bowel, may be grounds for short periods of restriction of protein. More often the history suggests a fermentative process, such as production of gas, and relief is obtained by restriction of carbohydrate or cellulose. Short periods of dietetic restriction, and the use of rough diets or of smooth diets, all serve to cater to disturbed gastro-intestinal function, but in their use it must be remembered that the optimal state of the patient's nutritional health should not be impaired by such measures. Clinical and experimental evidence suggests that this may be maintained and that for weeks or months material improvement in the general health of arthritic patients occurs with a diet high in all vitamins, low in carbohydrates, moderate although adequate in protein of good biologic value, and moderate in total calories.

DISCUSSION

DR. T. PRESTON WHITE, Charlotte, N. C.: Our patients seem to do much better on a diet low in carbohydrates and high in vitamins, but close attention must be paid to intestinal elimination, for poor elimination is evidently a large factor in keeping up arthritis. We attempt to restore the patient's weight to normal. At times we disregard all diets, feeling that the patient must first be restored to normal health.

DR. R. GARFIELD SNYDER, New York: Our experiments with feeding of vitamin B have not produced the clinical results or roentgenologic appearance noted by Dr. Fletcher. My associates and I have used wheat germ in the forms advocated by him and have encouraged patients to take them in as large quantities as possible, for periods varying from two to eight weeks. In about fifty cases the results were disappointing, clinically and roentgenologically. Definite clinical improvement, either in the form of improved intestinal elimination or decreased pain in the joints, did not occur either during or following the period of feeding of vitamin B. Roentgenologically, the changes in the colon described by Dr. Fletcher could not be demonstrated. The colons of these patients did not reveal any distinctive changes in size, configuration, tonicity, haustration or position. Generally the bowel looked the same before and after the period of feeding of vitamin B. In a small number of cases the colon appeared to be of wider lumen, more atonic, of greater redundancy, and to be mode ptotic than before the experiment was begun. I believe that these changes are extrinsic, transitory and not necessarily indicative of intestinal injury. Is it not possible that Dr. Fletcher's interpretation of intestinal improvement following feeding of vitamin B is due to changes in the appearance of the bowel produced by variations of roentgenologic technic rather than to intrinsic changes in the colon? In some of these cases we give colonic irrigations twice a week. Colonic irrigations given over a period of years do not produce any deleterious changes in the colon, demonstrable roentgenologically.

DR. W. J. KERR, San Francisco: Drs. Rinehart and Mettier recently attempted to produce chronic scurvy in guinea-pigs by giving foods deficient in vitamin C. They found infiltrations of cells in the valves of the heart and in many tissues of the body, presumably similar to Aschoff bodies. This work should be repeated and, if confirmed, may alter ideas concerning the etiology of rheumatism. Rheumatic diseases recur, are affected by climate, and may be related to inability to obtain proper vitamins in winter months.

DR. M. H. DAWSON, New York: Has Dr. Fletcher had any experience with diets high in carbohydrate in rheumatoid

arthritis? We have recently employed such a dietary regimen in a number of cases, with rather marked improvement.

DR. A. A. FLETCHER, Toronto: Many factors influence the tonus and shape of the colon. Observations regarding the influence of diet should be made under careful control. Dr. Snyder had his patients under a prolonged course of treatment with enemas, and his observations are thus open to criticism. I have recently observed a case in which vitamin B, given intramuscularly, brought about rapid improvement in tonus, and there seems to be no doubt that at times, clinically, variations in the vitamin B content of the diet, and the balance of the diet, are the most important factors in changing the shape of the colon. Sometimes an arthritic patient may improve with almost any abrupt change in diet. Diets high in carbohydrate, especially if given with injections of insulin to a patient who is much underweight, will result in increased strength and weight and in this way will increase resistance to infection. Such a diet should not be allowed to become inadequate in any other food factor.

Contusion of Cartilage as an Etiologic Factor in Chronic Arthritis

DR. J. ALBERT KEY, St. Louis: Contusions of the articular cartilage may heal without symptoms or may lead to the development of chronic arthritis in the injured joint. When the latter occurs, the degenerating cartilage should be excised. I have recently done this in two cases. The first case was that of a young man who struck his right knee on a beam. Severe pain and swelling resulted, which subsided under treatment, but the joint often became stiff and, on overexertion, sore and swollen. There was no sensation of catching or locking in the joint. The knee was slightly thickened and tender to pressure just lateral to the patellar ligament. On flexion, maximal tenderness appeared to be proximal to the external semilunar cartilage. The roentgenogram was negative. A diagnosis was made of traumatic arthritis of the left knee, with contusion of the articular cartilage of the external condyle of the femur. On exploration the diagnosis was confirmed and the injured necrotic cartilage, about 2 cm. in diameter, was removed. The clinical result was satisfactory. Similar cases have been reported by Budinger, Ludloff, Axhausen and Lawen. I have been able to produce arthritis by resecting a rectangle of cartilage in rabbits, but not in cats, and only occasionally in dogs. Apparently, in patients, the defect in cartilage created by surgical excision heals with a fibrous or cartilaginous base and does not tend to produce progressive arthritis.

DISCUSSION

DR. JAMES A. DICKSON, Cleveland: In examining a knee after injury, it is likely that the possibility of injury to articular cartilage will be ignored. If examination discloses that the ligaments are intact and that the semilunar cartilage is not injured, it is likely that the use of bandages, protection and physical therapy will be continued indefinitely. Dr. Key has demonstrated the fallacy of such an attitude and the importance of consideration of the possible production of osteochondritis dissecans. In cases in which symptoms persist, and it is possible to demonstrate roentgenologically the typical picture of osteochondritis dissecans, I do not hesitate to remove the loose cartilage; results have been uniformly gratifying. Roentgenologic observations must not be depended on entirely to determine whether exploration is indicated. Exploration should be made more often in cases of posttraumatic disturbance of joints, with persistent symptoms. No harm is done thereby, and undoubtedly a great deal of time often is saved and a more satisfactory result obtained. A thorough examination of the condyles should be made whenever the semilunar cartilage of the knee is being explored. Osteochondritis dissecans, without roentgenologic signs, is undoubtedly more frequently present than is usually believed, and if this condition should be kept in mind in studying posttraumatic symptoms referable to joints, undoubtedly many more cases would be revealed than are diagnosed at present. When the diagnosis is made, the patients respond excellently to treatment.

DR. R. K. GHORMLEY, Rochester, Minn.: The amount of trauma that may occur to cartilage from daily activities is not realized. Certainly, strain of the back and strain of other joints will produce changes concerning which physicians have no conception unless the joints are taken out and examined, which, of course, is not often done. Fibrillation has been found in many joints. In chronic flatfoot the same fibrillation of the cartilage is seen.

DR. J. A. KEY, St. Louis: I was not referring to osteochondritis dissecans, because I do remove the loose bodies from such joints when there is no marked arthritis. Two patients may suffer almost exactly the same injury, but one will develop chronic, progressive arthritis and the other will have no trouble with the joint. There must be differences in reaction to injury that determine the course of events after trauma.

The Treatment of Chronic Arthritis

DR. W. J. KERR, San Francisco: The common denominator in most methods of treatment that are reputed to be of value is the exhibition of improved circulation in the affected joint, whether this is brought about by local or by general measures. Methods that improve circulation are useful in both proliferative and degenerative arthritis.

The local measures of value are of several types: (1) the use of counterirritant agents and methods, such as liniments, salicylates, blisters, cupping, cautery, ultraviolet rays, constrictive hyperemia and other ways of producing local hyperemia from stasis; (2) wet or dry heat, as applied by water, mud baths, infra-red radiation, diathermy and other methods; (3) cold, in the form of cold baths, showers, douches and exposure to cold or bracing air, such as is employed in the open air treatment of tuberculosis of a joint; (4) sympathectomy or ramisectomy to relieve the vasoconstrictor tonus of an extremity, and (5) radiotherapy of sympathetic ganglions.

The general measures used to improve the circulation of a joint are: (1) general exercise; (2) increased intake of water, which may affect the volume of blood in circulation; (3) the use of vitamin C, which may tend to restore injured capillaries of those whose diet has been deficient in this respect; (4) administration of thyroid extract, which may increase the peripheral flow of blood; (5) use of foreign protein in the form of vaccines, peptones, serums and other foreign substances, which may produce so-called protein shock, which results in temporary or more prolonged improvement in peripheral circulation; (6) general use of heat by changing the patient's residence to a warmer climate, by applying radiant heat in cabinets, by use of hot baths, by applications of short waves (pyrotherapy); (7) anesthesia; (8) removal of foci of infection, and (9) other operations which may give temporary benefit to the patient by the exhibition of protein shock.

DISCUSSION

DR. M. F. LAUTMAN, Hot Springs, Ark.: Heat is often indiscriminately applied, and much of the disrepute that it has met is due to the fact that a physician tells his patient to go home and take baths as hot as he can stand. The patient goes home and sits in a tub of hot water until he becomes weak and exhausted. Consequently, he is not benefited. Hydrotherapy properly applied, with the understanding that there is an optimal temperature which every patient can tolerate to his advantage, is one of the safest and best methods that can be used to improve both articular and general circulation.

DR. L. T. SWAIN, Boston: At what time in the stage of arthritis is exercise of the joint indicated? My experience is that, if the joint is immobilized for a time, the disease is quieted more rapidly and there is much less injury. Exercise in the early stages should be avoided until the disease is quiescent. In several cases the only joints which did not undergo ankylosis were those which were protected and rested with casts. Proper attention to the joint in the early stages may prevent a great deal of injury from unnecessary trauma and strain.

DR. W. H. KERR, San Francisco: It seems to me that fixing a joint in a cast for a long period is about the worst thing that could be done. It is important to change the position of the joint from time to time.

Analgesia Accompanying Hepatitis and Jaundice in Cases of Chronic Arthritis

DR. P. S. HENCH, Rochester, Minn.: In the course of the last four years, observations have been made on the effect of intercurrent intrahepatic jaundice on the chronic pain experi-

enced by sixteen patients with chronic arthritis, fibrositis and sciatica. In two of the cases the intrahepatic jaundice apparently was not related to drugs; in fourteen cases it was considered the result of toxic hepatitis caused by cinchophen. Coincident generally with the onset of jaundice, fourteen of the sixteen patients received partial, usually complete, relief of pain for variable periods; moreover, in five of the six cases in which the joints were swollen, reduction of the swelling, sometimes complete, also was noted.

Five of the sixteen patients experienced complete analgesia, which was prolonged for from two weeks to eight months, in one instance for seven years, after disappearance of the jaundice. Four patients noted complete disappearance of pain with the onset of fatal hepatitis and jaundice caused by cinchophen; the analgesia persisted until death. In one case, complete relief of pain was noted only for the duration of icterus; in another case, pain disappeared completely at first, returning slightly during the latter part of the period of jaundice. Two patients had marked, although not complete, relief of pain during jaundice, and even thereafter, for two weeks and five months, respectively. No amelioration of pain was experienced by two patients with slight jaundice, and one other noted some relief, which later was lost, even in the presence of definite icterus. In an additional case, of chronic infectious arthritis and hepatitis caused by cinchophen but without jaundice, no relief of pain was experienced.

Analgesia associated with hepatitis and jaundice has not heretofore received detailed comment so far as I am aware. The mechanism whereby analgesia is produced is not known. The duration and degree of relief of pain were roughly proportional to the duration and intensity of the jaundice, as shown by the concentration of serum bilirubin; in at least one case, relief of pain preceded the appearance of visible icterus. The effect is probably not specific and may or may not be the result of a depressant effect of some component of jaundice on the nervous system, or to a sedative action on inflamed tissues. The therapeutic implications are obvious. It would be gratifying were one able to repeat nature's miracle, to provide at will a similar beneficence by the use of some nontoxic component of jaundice effective in available concentration. To explore the possibilities of such treatment, a group of patients is being treated with various substances suggested by this study.

DISCUSSION

DR. NATHAN SIDEL, Boston: It is interesting to speculate on the possibilities for future treatment of arthritis in view of these interesting observations that are encountered when jaundice occurs in arthritis. I recently saw a man about 39 years of age who had severe psoriasis followed by severe infectious arthritis, so-called psoriatic arthritis. With the onset of an attack of infectious hepatitis or catarrhal jaundice there was tremendous improvement in his arthritis. For several years he had been taking about six tablets of acetylsalicylic acid daily because of pain, but with the onset of jaundice no acetylsalicylic acid was necessary, because all pain of the joints had disappeared. Throughout the fairly intense jaundice, which lasted about five weeks, the patient felt remarkably well and had no pain or stiffness in the joints. With complete disappearance of jaundice, some pain and swelling of the joints recurred, but not as much as before the jaundice. Although he has now been free from jaundice for at least four weeks, acetylsalicylic acid has not been necessary, and his pains have been only slight. Within the last two weeks I have given this man two injections of decholin intravenously, but he has not noted any improvement as yet. Another patient, a woman, aged 50, who had infectious arthritis for several years, also experienced improvement in her arthritis with the onset of jaundice. In 1931 a physician prescribed capsules of "oxyliodide." After a few days the patient began to feel better, but ten days later intense jaundice developed, lasted five weeks, and was not of the obstructive type. The pains of arthritis disappeared completely with the onset of the jaundice and have remained absent for more than two years. About four weeks ago the patient again began to have some pains in certain joints. She has not taken any medicine, fearing to take even acetylsalicylic acid. Dr. George Minot of Boston told me that in cases of coexistent pernicious anemia and arthritis, when anemia was marked and the skin tinged yellow, the arthritis was likely to be much better; with improvement in color and blood count the arthritis sometimes became distinctly worse, demanding treatment. The two cases mentioned, one of infectious hepatitis and the other of toxic hepatitis, the observation of Dr. Minot, and the experiences of Dr. Hench, make one speculate as to whether a clue to the future treatment of arthritis may have been discovered, and whether, by giving patients the essential constituent of jaundice which causes relief of pain, relief may be brought about therapeutically.

DR. M. H. DAWSON, New York: Did any change in the peripheral circulation occur in these cases?

DR. S. S. KEEFER, Boston: During the last two years I have seen two patients who, during a definite attack of hepatitis, had arthritis for the first time. With subsidence of hepatitis, the arthritis disappeared. I also observed a patient with hemolytic jaundice who, during the course of the disease, had attacks of gout, with marked elevation of the value for uric acid in the blood. The attacks occurred before as well as following splenectomy.

DR. P. S. HENCH, Rochester, Minn.: Dr. Russell Haden of Cleveland told me yesterday of a patient with severe chronic atrophic arthritis who last year received complete relief from pain with the onset of jaundice, apparently from neoarsphenamine, given empirically. Complete analgesia has persisted to date and, in effect, the patient is entirely normal. Studies on peripheral circulation were made only in my most recent case. The cutaneous temperatures were normal.

The General Principles of Treatment in Chronic Arthritis

DR. G. R. MINOT, Boston: The general principles of treatment of chronic arthritis are to improve all functions of the body, to modify or remove the basic causes, to prevent or control organic changes, and to make adjustments that will lessen the burden of the handicapped organism. The two main types of chronic arthritis are generalized diseases with manifestations in joints, and thus the treatment must be directed first toward the patient as a whole and only secondarily toward the joints. The patient must appreciate that he requires a long period of training and, like the physician, must not doubt that wisely conducted treatment leads eventually to success in a large proportion of cases. Rest, habitual relaxation, and tranquillity of mind are of the utmost importance in the treatment of arthritis, as they are in tuberculosis. Relief from strain of all types must be secured. There would be fewer crippled arthritic patients if the milder and ambulatory cases were treated at once with a program of rest. Exercise of the correct kind and amount, and at suitable times, is also important. It influences favorably the retarded capillary circulation and all bodily functions.

There is, of course, no standard diet for arthritis. The quantity of the food should not be excessive, and the nutritive quality, especially of the protein, should be superior. Removal or alleviation of infection is of distinct importance, but foci of infection must not be eliminated on haphazard advice. To eradicate infectious foci and to do nothing else is comparable to bailing a boat and leaving the hole open. Infection probably plays a much more important part in atrophic than in hypertrophic arthritis. Foci of infection should be removed as early in the course of the disease as possible, for it is then that best results from their eradication are obtained. The physician must not pride himself that he, or even the patient, is responsible for all improvements, because nature tends to heal the disease.

Intensive treatment, begun early, offers the patient a much better prognosis than if it is delayed until the disease has existed a few years. Enough time for adequate treatment is fundamental. Arthritis touches many fields of medicine. One man must be the patient's chief and take full charge of him and his case. To teach the art of courageous living is often the chief prescription for the patient with chronic arthritis.

DISCUSSION

DR. R. B. OSGOOD, Boston: One cannot treat the patient's body only and not consider his mind. A patient must be treated as a whole. The disease cannot be cured by one procedure, certainly not by vaccine therapy alone, and probably not alone by the brilliant and fascinating things Dr. Hench has suggested.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

2: 449-492 (June) 1933

Some Recent Contributions by Science to Field of Medicine. I. Abell, Louisville, Ky.—p. 449.
Clinical Syndromes of Surgical Spleen. H. E. Simon, Birmingham. —p. 454.
Yeast Infections: Part III. Systemic Blastomycosis and Bronchomycosis. G. Walsh, Fairfield.—p. 458.
Postoperative Embolism. J. Watson, Anniston.—p. 462.
Toxemias of Pregnancy: Immediate and Delayed Dangers. G. F. Douglas, Birmingham.—p. 465.

American Journal of Cancer, New York

15: 269-534 (June) 1933

*Quantitative Behavior of Prolan A in Teratoma Testis. R. S. Ferguson, New York.—p. 269.
Lesions of Small Bowel. A. R. Bloom, Detroit.—p. 296.
Irradiation in Treatment of Bone Tumors. G. E. Pfahler, Philadelphia. —p. 318.
Juvenile Xanthoma Multiplex: Case Report and Discussion of Literature. A. B. McGraw, Detroit.—p. 345.
Heredity of Cancer. N. Dobrovolskaia-Zavadskaia, Paris, France.—p. 357.
Relation of Hypophysis to Growth of Malignant Tumors: II. Response of Hypophysectomized Rats to Inoculation with Walker Transplantable Mammary Carcinoma. L. T. Samuels and H. A. Ball, with technical assistance of Winea Simpson, San Diego, Calif.—p. 380.
Permeability of Blood Vessels In and Around Grafted Jensen Rat Sarcoma. H. Burrows, London, England.—p. 383.

Prolan A in Teratoma Testis.—Ferguson reports a series of 117 consecutive cases of teratoma testis, in which he studied the quantitative excretion of prolan A. He describes the Zondek technic for the quantitative estimation of prolan A in the urine. The patient with teratoma testis will excrete from 50 to 50,000 mouse units of prolan A per liter of urine depending on the embryonal character of the tumor, the extent of the disease and the status as regards treatment. Irradiation of the primary tumor and its metastases causes a decrease in the excretion of prolan A in the urine. Local recurrence or metastasis is accompanied by an increase in the excretion of prolan A in the urine, frequently before clinical detection of the lesion is possible. Serial observations at frequent intervals while the patient is under active treatment by irradiation give important prognostic information. Observations at necropsy reveal the important relation between the hormone of the anterior lobe of the pituitary and epithelial hyperplasia in the genital organs of the male, particularly the prostate and seminal vesicles.

American J. Obstetrics and Gynecology, St. Louis

25: 779-942 (June) 1933

Epithelial Proliferation in Cervix Uteri During Pregnancy, and Its Clinical Implications. J. Hofbauer, Baltimore.—p. 779.
Toxic Psychoses of Pregnancy and Puerperium. L. S. McGoogan, Omaha.—p. 792.
Etiology of Prolapse. E. Von Graff, Iowa City.—p. 800.
Avitaminosis as a Likely Etiologic Factor in Polyneuronitis Complicating Pregnancy: Report of Case. R. Luikart, Omaha.—p. 810.
Consideration of Schneider Modification of Aschheim-Zondek Test as Related to Private Practice. H. S. Morgan, Lincoln, Neb.—p. 816.
Trichomonas Vaginalis (Donné). I. F. Stein and Elizabeth J. Cope, Chicago.—p. 819.
Endometrial Hyperplasia: Review of Experimental Work. L. E. Burch and J. C. Burch, Nashville, Tenn.—p. 826.
Nägele Pelvis with Coincidental Deformities of Genital Tract and Extremities. J. R. Reinberger, Memphis, Tenn.—p. 834.
Test of Labor. L. Rudolph, Chicago.—p. 840.
Further Studies in Treatment of Puerperal Septicemia and Other Blood Stream Infections with Metaphen. J. B. Bernstine, Philadelphia. —p. 849.
Ablatio Placentae Followed by Sloughing of Uterus: Report of Case. W. A. Coventry and R. J. Moe, Duluth, Minn.—p. 859.
Congenital Defects of Scalp: Studies in Pathology of Development, III. N. W. Ingalls, Cleveland.—p. 861.
Hysterostomatomy. L. M. Randall, Rochester, Minn.—p. 873.
*Pupillary Test for Diagnosis of Pregnancy: Based on Observation of Three Hundred and Eighty-Two Patients. Z. Bercovitz, Pyengyang, Chosen.—p. 882.
*Treatment of Uterine Bleeding with Snake Venom (Ancistrodon Piscivorus). S. M. Peck and M. A. Goldberger, New York.—p. 887.
Abruptio Placentae. I. A. Siegel, Baltimore.—p. 894.
Retzius Space Abscess Following Laparotomy. E. E. Reeves, Amarillo, Texas.—p. 897.
Adenomyoma (Adenomyosis of Frankl) of Uterus with Tuberculous Infection. R. H. Rigdon, Durham, N. C.—p. 902.
Granuloma of Vaginal Vault. N. P. Sears, Syracuse, N. Y.—p. 906.
*Modification of Friedman Pregnancy Test. M. Vesell, New York.—p. 909.
Pregnancy and Labor Subsequent to Abruptio Placentae and Uteroplacental Apoplexy. S. S. Rosenfeld, New York.—p. 911.
Ruptured Ovarian Cyst in the New-Born: Report of Case. S. M. Dodek, Washington, D. C.—p. 914.
Treatment of Asphyxia in the New-Born by Lung Inflator for Indirect Mouth-to-Mouth Breathing. P. MacKenzie, Evansville, Ind.—p. 918.
True Sarcomatous Change in a Uterine Fibroid. P. D. Scofield, Columbus, Ohio.—p. 920.
Simple Procedure of Ascertaining Sex of the New-Born, Where Diagnosis Is Difficult Due to Genital Abnormalities. J. T. Witherspoon, New Orleans.—p. 921.
Umbilical Cord Relatively Shortened by Coiling About the Neck of the Fetus. A. Zehm, Schofield Barracks, Hawaii.—p. 923.
Incomplete Bipartite Uterus with Unilateral Hematocolpos and Salpingitis. G. L. Carrington, Burlington, N. C.—p. 924.

Pupillary Test for Pregnancy.—Bercovitz studied the pupillary reactions of pregnant women, nonpregnant women and men. One drop of a 10 per cent solution of sodium citrate is mixed with 5 or 6 drops of the patient's blood and instilled into one eye. The other eye is used for control observation and comparison. The test requires about two minutes and the reaction usually lasts for about five minutes. Of the 138 women who were not pregnant, none showed a positive pupillary reaction. Sixteen men gave negative reactions. There were no false positive reactions. In 183 patients the diagnosis of pregnancy was confirmed by subsequent events. Of these, 155, or 84.7 per cent, showed positive pupillary reactions. In one there was a positive pupillary reaction twelve days after the onset of the last menstrual period. Forty-one postpartum cases were observed. Thirty-four gave negative pupillary reactions. One patient who had a positive reaction before delivery gave a negative reaction fifteen minutes after the delivery of twins and the placenta. Phenol, 0.2 per cent, in physiologic solution of sodium chloride will prevent or abolish a pupillary reaction of pregnancy. Neutralized female sex hormone, isolated from the urine of pregnant women, failed to cause a pupillary reaction when instilled into the conjunctival sac of fourteen pregnant women. All these women reacted positively to their own blood.

Treatment of Uterine Bleeding with Snake Venom.—Peck and Goldberger treated twelve patients with snake venom for functional uterine bleeding. The period of time in which bleeding was controlled varied from five days to two and three weeks. In most of the patients it required about six injections given over two to three weeks before any definite effect was noted. With the control of the uterine bleeding there was a rapid improvement of the secondary anemia usually present. The venom of Ancistrodon piscivorus was used in 1:3,000 dilution with sterile physiologic solution of sodium chloride containing 1:10,000 merthiolate. It was given intradermally. The initial injection was 0.2 cc. and subsequent injections were 0.4 cc., given two times a week. The therapy was continued for from three to six months. Treatment should be given for at least three months, even in the presence of marked clinical improvement. For the first five or six injections, care should be taken that the injection sites are separated from one another at least 10 cm. The left and right arm and the right and left thigh can be used. If hypersensitivity occurs, it is advisable to reduce the concentration to 1:10,000 and to continue the injections until a dose of 0.4 cc. of 1:3,000 is used. By this means, desensitization without any untoward reactions was obtained in practically all cases. The injections should be planned as follows: 0.1 cc. of 1:10,000, 0.4 cc. of 1:10,000, 0.2 cc. of 1:6,000, 0.4 cc. of 1:6,000, 0.1 cc. of 1:3,000, and 0.4 cc. of 1:3,000.

Friedman Pregnancy Test.—The present modification of the Friedman pregnancy test, as adopted by Vesell in 533 cases, showed 100 per cent accuracy. A positive result has been obtained after the death of a fetus for a period of from four to six weeks in gestations of six months' duration or

more. The procedure differs from the original Friedman test in that 7 cc. instead of 5 cc. of urine is injected. Necropsy is performed in forty-eight hours instead of twenty-four. Female rabbits of any size, weighing at least 1,600 Gm., instead of virgin rabbits may be used. In cases of early amenorrhea, the same rabbit is reinjected with 7 cc. of the same urine, twenty-four hours after the first injection. The urine is kept in the icebox between injections. Necropsy is performed forty-eight hours after the initial injection.

American Journal of Physiology, Baltimore

104: 519-732 (June 1) 1933. Partial Index

Electrical Excitation of Multifibered Nerves. A. Rosenblueth and D. McK. Rioch, Boston.—p. 519.
Placental Transmission of Parathyroid Extract. F. M. Hoskins, New York, and F. F. Snyder, Baltimore.—p. 530.
Influence of Spinal Irradiation on Cutaneous Sensations: II. Effect of Pain Irradiation on Temperature Sensations. E. Gellhorn and Jane Day Northup, Chicago.—p. 537.
Studies on Conditions of Activity in Endocrine Organs: XXIX. Sympathin E and Sympathin I. W. B. Cannon and A. Rosenblueth, Boston.—p. 557.
Application of Paired Feeding Method to Quantitative Estimation of Relative Vitamin B Contents of Foods and Artificial Concentrates. H. H. Mitchell, Urbana, Ill.—p. 594.
Application of Paired Feeding Method to Quantitative Estimation of Relative Vitamin A Contents of Foods and Artificial Concentrates. O. F. Garrett and H. H. Mitchell, Urbana, Ill.—p. 608.
Observations on Urea Clearance in Dogs. R. L. Holman, Rochester, N. Y.—p. 615.
Effect of Dehydration on Adrenal Secretion and Its Relation to Shock. N. E. Freeman, R. S. Morison and M. E. M. Sawyer, Boston.—p. 628.
Absorption of Insulin from Gastro-Intestinal Tract: I. Effect of Calcium Lactate, Sodium Bicarbonate and Blood Serum in Depancreatized Dogs. A. G. Eaton and J. R. Murlin, Rochester, N. Y.—p. 636.
Filtration and Secretion of Exogenous Creatinine in Man. N. Jolliffe and H. Chasis, New York.—p. 677.
Production of Deciduomas in Immature Rats by Pregnancy Urine Treatment: Demonstration of Functional Capacity of Induced Corpora Lutea in Infantile Rat. M. C. Shelesnyak, New York.—p. 693.
Absorption of Glucose from Intestine. I. S. Ravdin, C. G. Johnston and P. J. Morrison, Philadelphia.—p. 700.
Sex Hormones of Anterior Lobe of Hypophysis: Further Purification of Follicular Stimulating Factor and Physiologic Effects on Immature Rats and Rabbits. H. L. Fevold, F. L. Hisaw, A. Hellbaum and R. Hertz, Madison, Wis.—p. 710.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

29: 729-866 (June) 1933

Pathologic Changes in Diseases of Joints. R. K. Ghormley, Rochester, Minn.—p. 729.
Correlation of Pathologic and Roentgenologic Findings in Diagnosis of Tuberculous Arthritis. D. B. Phemister and C. H. Hatcher, Chicago.—p. 736.
*Roentgen Diagnosis of Bone and Joint Tuberculosis. M. M. Pomeranz, New York.—p. 753.
Osteochondritis, Focal and Multiple. M. Harbin, Cleveland.—p. 763.
Roentgen Findings in Chronic Polyarticular Arthritis. L. G. Rigler and M. Wetherby, Minneapolis.—p. 766.
Roentgenologic Studies of Intervertebral Disk: Discussion of Embryology, Anatomy, Physiology, Clinical and Experimental Pathology. E. L. Compere and D. C. Keyes, Chicago.—p. 774.
Roentgenographic Investigation of Time Element in Ossification. J. W. Pryor, Lexington, Ky.—p. 798.
*Primary Chondroma of Lung. C. D. Benninghoven and C. B. Peirce, Ann Arbor, Mich.—p. 805.
Unusual Case of Pleural Effusion Simulating Elevation of Diaphragm. W. M. Yater and I. Rodis, Washington, D. C.—p. 813.
Studies on Effect of Roentgen Rays and Gamma Rays on Eggs of Drosophila Melanogaster. O. Glasser and F. R. Mautz, Cleveland.—p. 815.
Comparison of High Voltage Roentgen-Ray Generators. L. S. Taylor and K. L. Tucker, Washington, D. C.—p. 826.

Diagnosis of Bone and Joint Tuberculosis.—According to Pomeranz, the criteria utilized in the roentgen diagnosis of tuberculosis are subject to diversified exceptions which make accurate interpretation of this disease extremely difficult. The changes in the bones and joints are dependent on the severity and duration of the process as well as the specific locality involved. The presence of a sinus and infection introduces factors whose roles in the process are extremely difficult to evaluate. The intelligent appraisal of characteristic changes and the modifications produced by extraneous circumstances determine the successful diagnosis of the disease. The usual roentgen changes of joint tuberculosis are synovitis and periarticular swelling, bone atrophy or sclerosis, bone production and destruction in the epiphysis and metaphysis, narrowing of the joint space, sequestration and the presence of cold abscesses or sinuses. 1. Synovitis, periarticular swelling and bone atrophy are common to all arthritides and are only of corroborative value in the diagnosis of tuberculous arthritis. Bone atrophy is usually marked, but its intensity is modified by numerous imponderable factors which complicate diagnosis. 2. Sclerosis and bone production occur in tuberculosis even in the absence of a mixed infection. When sinuses exist, bone production may be absent. Diaphyseal tuberculosis in long tubular bones is rare and, roentgenologically, the diagnosis is impossible. 3. Wedge or cone shaped lesions are usually tuberculous. 4. "Kissing" sequestrums are common in tuberculosis. 5. Narrowing of a joint space which occurs late in an infection, despite associated destructive changes, is strongly presumptive of the existence of tuberculosis. 6. Complications, such as kyphosis, subluxation and sinus formation, occur in tuberculosis as well as in other arthritides. 7. Roentgenologically, the presence of a cold abscess specifically identifies the process as tuberculous.

Primary Chondroma of Lung.—Benninghoven and Peirce point out that the majority of primary chondromas of the lung are located near the pleural surface. The neoplasm is usually round or oval, varies in size, and is always encapsulated. Two characteristics, the nodular, lobulated structure and the tendency to undergo calcification or osseous transformation, are important from a roentgenologic standpoint. Microscopically, the most prominent element is cartilage; both the hyaline and the fibrous type are frequently encountered. In the roentgenogram, a primary pulmonary chondroma should present (1) an abnormal mass of great relative density surrounded by a normal air-containing lung, (2) a sharply defined lobulated border and (3) within it scattered, irregular areas of even greater density representing calcium or bone. In the differential diagnosis, the sharply defined periphery of the chondroma, surrounded by normally aerated lung, is easily distinguished from an encapsulated chronic inflammation (old abscess or tuberculous lesion with calcification). Cellular infiltration in the immediate lung parenchyma usually accompanies an inflammatory condition. It is absent in the neighborhood of the chondroma. Solitary echinococcus cysts of the lung occur more often than primary pulmonary chondroma. The roentgenographic appearance is similar, but the border of the shadow of the echinococcus cyst is smoother and there may be slight cellular infiltration in the surrounding lung parenchyma. The cystic mass is usually of homogeneous density. The history of previous infestation with Taenia echinococcus, potential exposure to the parasite, and the complement fixation test are of value in making the differentiation. The tumor is essentially nonmalignant, except when its location produces a mechanical obstruction. It can be successfully removed, if necessary, when favorably situated, and without fear of recurrence. The neoplasm is sufficiently characteristic, roentgenographically, to permit identification without microscopic study.

Annals of Internal Medicine, Ann Arbor, Mich.

6: 1517-1702 (June) 1933

President's Address. F. M. Pottenger, Monrovia, Calif.—p. 1517.
*Observations on Addisin in Diseases of the Blood. R. S. Morris, M. L. Rich, L. Schiff, J. H. Foulger and H. Felson, Cincinnati.—p. 1535.
Amebic Invasion of Lymphoid Tissue and Its Probable Clinical Significance. W. C. Boeck, Los Angeles.—p. 1546.
Variations in Volume and in Acid Content of Gastric Secretion of Normal Individuals Following Stimulation by Histamine. F. Engelbach and C. L. Brown, Ann Arbor, Mich.—p. 1560.
Orthostatic Albuminuria: Comparison with Other Types of Albuminuria. E. G. Thorp and E. G. Wakefield, Rochester, Minn.—p. 1565.
Addison's Disease and Its Relation to Experimental Adrenal Insufficiency. G. A. Harrop, Baltimore.—p. 1579.
Influence of Age in Experimental Production of Hypertrophic Arthritis: Preliminary Report. A. D. Goldhaft, Lillie M. Wright and R. Pemberton, Philadelphia.—p. 1591.
Correlation of Hemodynamics, Function and Histologic Structure of Kidney in Malignant Arterial Hypertension with Malignant Nephrosclerosis. Soma Weiss, F. Parker, Jr., and G. P. Robb, Boston.—p. 1599.
*Changes Observed in Heart Shadow in Toxic Goiter Before and After Treatment. O. J. Menard and L. M. Hurxthal, Boston.—p. 1634.
Discussion of Case of Gastric Carcinoma with Recurrent Colic. J. G. Weiner, Philadelphia.—p. 1644.
Port of Flanders Fields: Lieutenant Colonel John McCrae, Canadian Army Medical Corps. L. H. Roddis, San Pedro, Calif.—p. 1657.

Addisin in Diseases of Blood.—Morris and his associates state that the hematopoietic hormone (addisin) is a normal constituent of the gastric secretion of man, dogs, swine and cattle. It is probably distributed widely in the animal king-

dom. Addisin may be recovered in a form suitable for intramuscular injection by concentration in vacuo, by dialysis and by conversion to an ethyl ester. A preparation for intravenous use has not yet been obtained. A single large dose of addisin may be sufficient to induce a remission in pernicious anemia and is more effective than repeated small doses. There is evidence to suggest that the cause of erythremia may be a hypersecretion of addisin or a hypersusceptibility to stimulation by it on the part of the bone marrow. The results of treatment of acholuric jaundice with addisin are sufficiently encouraging to warrant further trial. The possibility of establishing normal maturation of the red cells is suggested. In a patient with agranulocytic angina, the leukocytic reaction and clinical improvement have been remarkably prompt. In this disease it is possible that addisin may be curative. Theoretical considerations indicate the possibility that addisin may play a significant part in other blood dyscrasias.

Changes in Heart Shadow in Toxic Goiter.—Menard and Hurxthal made roentgenograms before and after treatment in 115 cases of toxic goiter. Comparisons of the films were made by measurement and by superimposition. Definite reduction in size was observed after congestive heart failure was relieved and after auricular fibrillation had ceased, and in a few cases without these complications. The authors conclude that superimposition of seven-foot roentgenograms of the heart is the most satisfactory method of judging changes in the size and shape of the heart. Very little change takes place in the heart shadow in uncomplicated cases of toxic goiter with normal rhythm following removal of thyroid toxicity by subtotal thyroidectomy. Cardiac dilatation as shown by roentgenograms takes place most frequently in congestive heart failure with or without auricular fibrillation. Occasionally in cases of toxic goiter of sufficient duration, uncomplicated by other cardiovascular disease, certain changes in the heart shadow may be found which have been described as characteristic of hyperthyroidism.

Annals of Otol., Rhinol. and Laryngology, St. Louis

42: 321-640 (June) 1933

Personal Recollections of a Great Laryngologist: Sir Morell Mackenzie, 1836-1892. D. B. Delavan, New York.—p. 321.
Unreal Phenomena in Audition and Their Relation to Test Methods. A. G. Pohlman, Vermilion, S. D.—p. 352.
Relation of Increased Intracranial Pressure to Disease in Pneumatic Spaces. J. W. Carmack, Indianapolis.—p. 364.
Agranulocytosis: Appearance of Early Pharyngeal Lesion; Three Cases, One Apparent Recovery. J. B. Costen, St. Louis.—p. 372.
Lichen Planus of Oral Cavity Without Cutaneous Manifestations. S. E. Roberts, Kansas City, Mo.—p. 385.
Cytologic Study of Sphenoid Sinus. E. C. Sewall, San Francisco.—p. 391.
General Indications for Radical Sinus Surgery. G. M. Coates, Philadelphia.—p. 400.
*Retropharyngeal Abscess of Otitic Origin: Anatomy and Pathogenesis: Report of Cases. S. Z. Faier, St. Louis.—p. 408.
*Blue Mantles in Otosclerosis: Contribution to Pathology of Labyrinthine Capsule. M. H. Weber, Berlin, Germany.—p. 438.
Surgical Treatment of Suppuration of Petrosal Pyramid. E. M. Seydell, Wichita, Kan.—p. 455.
Differential Diagnosis in Headache of Periodic Type. T. R. Gittins, Sioux City, Iowa.—p. 463.
Schwannoma of the Larynx. H. H. Vail, Cincinnati.—p. 476.
Chemical and Cytologic Study of Aural and Nasal Exudates as Regards Chemical Diagnosis of Cholesteatoma. L. W. Dean, Jr., and Marian G. Pfingsten, St. Louis.—p. 484.
Agranulocytosis with Mastoiditis: Report of Case. J. C. Sharp and A. H. Cochran, Jr., New York.—p. 498.
Some Unusual Neuro-Otologic Cases. S. L. Shapiro, Chicago.—p. 504.
Recurring Mastoiditis. N. E. Lacy, Kansas City, Mo.—p. 526.
Technical Procedure of Operation on Osteomas of Ethmoid Labyrinth. A. G. Fetissof, Tomsk, Siberia.—p. 533.
Lymphatic Cells in Disease of Upper Respiratory Tract. J. L. Jenkins, Dallas, Texas.—p. 541.
Papillomatosis Laryngis. J. H. Foster, Houston, Texas.—p. 548.
Eustachian Catheter: Short Historical Outline. G. E. Tremble, Montreal, Canada.—p. 560.
Bacteriology of Maxillary Sinuses: Clinical Aspect. O. H. Maclay, Chicago.—p. 567.
Id.: Laboratory Aspect. Ruth E. Getty, Chicago.—p. 576.

Retropharyngeal Abscess of Otitic Origin.—Faier states that a retropharyngeal abscess, if left to itself, may result in any of the following complications, particularly when overlooked, oftentimes being undiagnosed and discovered only at necropsy: (1) Spontaneous rupture into the esophagus may occur; (2) rupture into the air passages may occur, with production of pneumonia, lung abscess or sudden asphyxia; (3) pus may burrow laterally and appear externally, anterior or posterior to the sternocleidomastoid muscle; (4) pus may pass downward behind the esophagus and enter the posterior mediastinum; (5) the process may spread by way of the blood and lymph channels to cause septicemia, pyemia or meningitis; (6) the abscess may cause erosion of the large vessels of the neck, such as the internal carotid artery or internal jugular vein; (7) respiration may be interfered with by pressure on the larynx with production of edema of the glottis; (8) jugular thrombosis may result; (9) cardiac failure may occur by pressure on the vagus and sympathetic nerves, and (10) pus may extend into the axilla along the subclavian vessels and brachial plexus. Retropharyngeal abscess may be caused by suppuration in the retropharyngeal lymph nodes, caries of the cervical vertebrae and burrowing of pus from other regions by direct extension. Burrowing of pus may be the result of infection following injury to the posterior wall of the pharynx from an injury or a foreign body, otitic infection, suppuration of the parotid gland and lymph nodes, dental infection and tonsillar and posttonsillectomy infections. The author reports nine cases in which suppurative otitis media was an important etiologic factor in the formation of the retropharyngeal abscess.

Blue Mantles in Otosclerosis.—Weber has histologically examined fifty-one human temporal bones showing otosclerosis but no signs of Paget's disease. In all fifty-one labyrinthine capsules the bone surrounding the otosclerotic focus showed processes of transformation. This transformation of bone made its appearance in the form of perivascular mantles and in 28 per cent of the cases examined in the form of so-called blue mantles. With the silver stain (after Bielschowsky-Maresch) and with the aid of the polarized light, especially with the new "two-picture method" of the author (i. e., one photomicrograph of the hematoxylin-eosin stained section and another photomicrograph of the same object in polarized light), it was found that the blue mantles consisted of a primitive, mainly plexus-like pathologic bone tissue, newly formed after previous lacunar absorption of the surrounding bone from the vessel space. The remaining 72 per cent showed red mantles and mixed mantles. The mixed mantles consisted partially of plexus-like bone and partially of lamellar bone. The red mantles consisted only of lamellar bone. All these perivascular areas followed previous absorption. The author concludes that otosclerosis cannot be regarded generally as a purely primary focal disease but must be regarded as a disease at least of the whole labyrinthine capsule. He discusses the significance of this fundamental result for the problem of otosclerosis. The investigations of the author lead him to believe that in every case of otosclerosis the general skeletal system shows pathologic changes.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

14: 325-380 (June) 1933

Physical Therapy in Treatment of Fractures. C. R. Murray, New York.—p. 325.
Indications and Contraindications of Roentgen-Ray Radiation. F. C. Wood, New York.—p. 329.
Ultraviolet Radiation as an Aid in Prevention of Common Colds. G. H. Maughan, Ithaca, N. Y.—p. 335.
Radiothermy on Oxygen Content and Capacity in Human Blood: Saturation Point of Hemoglobin with Oxygen. Anna Goldfeder, New York.—p. 339.
Treatment of Subacromial and Subdeltoid Bursitis. M. Weisblum, Philadelphia.—p. 341.
*Use of Galvanic Current in Atrophic Rhinitis. J. S. Stovin, New York.—p. 345.
Pulse Rate Indicating and Recording During Radiothermy Application. M. M. Schwarzschild, New York.—p. 347.
Late Progress in Radiotherapy. M. Cutler, Chicago.—p. 350.
Physical and Therapeutic Considerations of Mercury Spectrum. J. S. Hibben and J. S. Beckett, Pasadena, Calif.—p. 354.
Major Electrosurgery. E. H. Trowbridge, Worcester, Mass.—p. 363.

Galvanic Current in Atrophic Rhinitis.—During a period of six years, Stovin used the galvanic current in atrophic rhinitis. It has proved the most satisfactory. With this he depends solely on the stimulating effect on the mucous membranes and nerve endings and not on any chemical effect of some medicinal agent, such as zinc sulphate, being driven into the membrane by the current. He finds that the stimulation of the mucous membrane tends to restore partially its normal physiologic functions and that the stimulation of the olfactory nerve endings improves the sense of smell. He employs the following method: The nose is thoroughly cleansed by wet

suction, warm physiologic solution of sodium chloride being used. The fluid is run into one nostril, the head being lowered, while the patient says "K-K-K," and the return flow is sucked from the other nostril into a suction bottle. The nasal tips are alternated several times during the procedure so that the nose will be thoroughly cleansed of all mucus and crusts. The nostrils are then packed with successive layers of absorbent cotton strips which have been dipped in physiologic solution of sodium chloride. These should completely fill the nose from the floor to the roof, including the olfactory area. The cotton strips should be long enough to extend half an inch out of the nostrils. The active pole is attached to the protruding cotton, and the inactive pole is held in the patient's hand or attached to his arm. The current is turned on and the rheostat moved up slowly until the patient experiences a salty taste in the mouth. The millimeter reading is usually between 5 and 10. The current is applied for fifteen minutes and the packs are removed. An oil, such as balsam of peru in castor oil or Mandl's solution, is applied to the mucous membrane. These treatments are given three times a week at first, and later, as improvement is noted, at longer intervals. Improvement occurs when the membranes become redder, moist and thicker. The postnasal discharge lessens and the sense of smell is markedly improved.

Arkansas Medical Society Journal, Little Rock

30: 1-17 (June) 1933

Anterior Pituitary Growth and Sex Hormones. H. H. Turner, Oklahoma City.—p. 1.
Roentgenology as Aid in Obstetrics. W. R. Brooksher, Fort Smith.—p. 3.

Canadian Medical Association Journal, Montreal

28: 587-700 (June) 1933

Alcohol. I. M. Rabinowitch, Montreal.—p. 587.
Friedman Modification of Aschheim-Zondek Test for Diagnosis of Pregnancy. C. H. Best and E. W. McHenry, Toronto.—p. 599.
Danger of Incomplete Removal of Apparently Innocent Tumors. J. C. Bloodgood, Baltimore.—p. 600.
Irradiation Therapy in Cancer of Breast. G. E. Pfahler, Philadelphia.—p. 602.
Fall Hay Fever Pollens of Canada. O. C. Durham, North Chicago, Ill.—p. 604.
Rat-Bite Fever in Canada. R. C. Stewart, Montreal.—p. 608.
Clinical Classification of Bright's Disease. H. C. Jamieson, Edmonton, Alta.—p. 614.
*Injuries of Semilunar Cartilage: Effective Treatment of Recent Injuries and of Some Recurrent Types. C. S. Wright, Toronto.—p. 618.
Sycosis and X-Rays. A. Marin, Montreal.—p. 621.
Mental Conflict. W. H. Cassels, Ponoka, Alta.—p. 624.
Present Status of Anesthetic Ether Regarding Its Common Impurities. W. B. Neff, Montreal.—p. 627.
Diagnosis and Treatment of Disorders of Parathyroid Glands. R. F. Farquharson, Toronto.—p. 629.
*Osteitis Fibrosa with Multiple Benign Giant-Cell Tumors. L. H. Leggett, Guelph, Ont.—p. 636.
Comparative Study of Human Ova. P. J. Kearns, Montreal.—p. 640.
Relapsing Fever in North America: Report of Outbreak in British Columbia. J. H. Palmer and D. J. M. Crawford, Trail, B. C.—p. 643.

Injuries of Semilunar Cartilage.—Wright states that the treatment of an injured lateral ligament with displaced or injured cartilage or of a severe injury of the lateral ligament alone is: 1. Reduction, accomplished by nearly full flexion, internal rotation of the tibia, and extension, preferably under an anesthetic. 2. Injection of from 5 to 10 minims (0.3 to 0.6 cc.) of tincture of iodine at the point of greatest tenderness, and deep enough to reach the tibial border, to create an aseptic inflammatory reaction sufficient to aid the cartilage to adhere. 3. Fixation in extended position by a light plaster cast with only stockinet or a single bandage lining, and a piece of silence cloth over the knee and the prominence of the head of the fibula. 4. A rest of one or two days, after which function should be permitted by walking; i. e., weight bearing. 5. Muscle redevelopment. 6. Prevention of mechanical stress by elevation of the heel of the shoe on the inner border for internal cartilages. In acute primary injuries the swelling may be so tense and the pain so severe as to make the early fixation in plaster inadvisable, in which case extension should be preserved by a posterior splint and rest, and, if the pain is acute, aspiration is advisable and will give great relief.

Osteitis Fibrosa.—Leggett reports a case in which the areas of osteitis fibrosa were associated with benign giant-cell tumors. In the single lesion of this condition good results have been obtained by thorough curettage and phenolization of the interior of the tumor. This may or may not be followed by the inlay of a bone transplant, which course will be determined by the function of the part. Zinc chloride has also given good results. Packing the cavity with gauze may lead to infection and should not be done, as fatal hemorrhage may occur when the packing is removed. The limb should be immobilized to prevent pathologic fracture. To prevent recurrence, radium or high voltage roentgen therapy is recommended. Irradiation results only in a 20 per cent recurrence. A certain amount of danger is involved in employing radiation too soon after operation, as a local breaking down of the skin may follow with subsequent infection. During the early months the tumor may increase in size under irradiation, but this increase is soon followed by a shrinking of the growth and formation of a new dense bone. In multiple cases, irradiation appears to be the only possible line of attack.

Illinois Medical Journal, Chicago

63: 489-586 (June) 1933

Medicine and the Changing Social Order. J. R. Neal, Springfield.—p. 506.
*Treatment of Periodic Headache with Chondroitin Sulphuric Acid. L. A. Crandall, Jr., and G. M. Roberts, Chicago.—p. 513.
Intracapsular Cataract Extraction by "Vacuum Cup Method": Preliminary Report of Fourteen Cases. E. R. Crossley, Chicago.—p. 519.
Preexisting Diseases, Independent of Employment Versus Industrial Accidents. K. Garve, Los Angeles.—p. 521.
Newer Organotherapy in Gynecology. M. W. Field, Chicago.—p. 528.
Cyclic Enthusiasm in Electrosurgery, as Applied to Tonsillectomy. R. F. Elmer and C. E. Boylan, Chicago.—p. 532.
Tendon Suturing. R. W. Hubbard, Chicago.—p. 534.
*Treatment of Endocervicitis by Electrocauterization and Electrocoagulation. S. D. Soter, Chicago.—p. 539.
Attitude of the American Medical Association Toward Socialism, Industrialism and Insurance Commercialism in Medicine. S. Harris, Birmingham, Ala.—p. 543.
Mouth Infection: Its Systemic Relation and Diagnosis. E. H. Thomas, Chicago.—p. 548.
Abdominal Emergencies Dealing Especially with Abdominal Injuries. G. G. Davis, Chicago.—p. 554.
Tuberculosis: Is Complete Eradication in Sight? D. O. N. Lindberg, Decatur.—p. 564.
Abdominal Emergencies in Infancy and Childhood. E. M. Miller, Chicago.—p. 569.
Hay Fever Plants and Hay Fever Pollen in Illinois. O. C. Durham, North Chicago.—p. 574.
Foreign Bodies in Rectum. M. M. Marbel, Chicago.—p. 580.
What Caused This Psychosis and Why This Type of Psychosis? C. E. Mayou, East Moline.—p. 581.

Treatment of Headache with Chondroitin Sulphuric Acid.—While studying the action of chondroitin sulphuric acid in peptic ulcer, Crandall and Roberts observed a striking effect on the headaches of which a number of the patients complained. The headaches in these cases were not due to previous alkali therapy. In two of the patients, the headache was definitely migrainous in character. Therefore they administered chondroitin sulphuric acid to forty-two patients with idiopathic headache. More than 50 per cent have been markedly benefited, and another 30 per cent appear to be partially relieved. The cases are classified as migraine, migranoid or simple headache. The authors discuss the criteria for these classifications. The proportion of improvement in the three groups is similar. The period of treatment varied from two to twelve months. As a rule, continued administration is necessary to maintain improvement. The optimal dosage, administered orally, has appeared to be 3 Gm. a day; only rarely has benefit resulted from larger doses. The response appears to be equally satisfactory whether the substance is given three times a day in divided doses or the whole amount once daily.

Treatment of Endocervicitis.—Soter believes that the treatment of endocervicitis by thermocauterization or electrocoagulation is the method of choice. Surgery should not be done until after one of these methods has been tried. Prophylaxis after parturition and repair of cervical tears will help to reduce materially these infections and prevent more serious trouble. The treatment and cure of endocervicitis often mean the prevention of cancer. Reduced physical resistance predisposes to these infections. Indiscriminate douching and careless vaginal examination often introduce them. Complications following thermocauterization and electrocoagulation are possible, and due caution should be used in patients before the menopause.

Journal of Comparative Neurology, Philadelphia

57: 369-620 (June 15) 1933

Experimental Studies on Intrinsic Fibers of Cerebellum: I. Arcuate Fibers. J. Jansen, Oslo, Norway.—p. 369.

Vestibular Club Endings in Ameiurus: Further Evidence on Morphology of Synapse. G. W. Bartelmez and N. L. Hoerr, Chicago.—p. 401.

Area of Sunken Cerebral Cortex as Determined from Length and Depth of Selected Sulci in Three Classes of Human Brains: Scholars, Hospital Whites and Hospital Negroes. W. H. F. Addison and H. H. Donaldson, Philadelphia.—p. 429.

Status of Metamerism in Central Nervous System of Chick Embryos. G. L. Streeter, Baltimore.—p. 455.

Study of Occipital Region of Chinese Fetal Brain. I. C. Wen, Peiping, China.—p. 477.

Development of Lateral-Line Sense Organs in Amphibians Observed in Living and Vital-Stained Preparations. L. S. Stone, New Haven, Conn.—p. 507.

Contribution to Cerebral Representation of Retina. S. Poljak, Chicago. —p. 541.

Journal of Lab. and Clinical Medicine, St. Louis

18: 873-992 (June) 1933

*Further Observations on Complement Fixation Test in Diagnosis of Amebiasis: Analysis of Results of Test in One Thousand Individuals. C. F. Craig, New Orleans.—p. 873.

*Results of Treatment in Rheumatoid Arthritis, with Reference to Foci of Infection and Streptococcus Vaccine. W. J. Stainsby and Edith E. Nicholls, New York.—p. 881.

Yeastlike Fungi: Differential Characteristics and Case Reports. W. D. Stovall and Anna A. Bubolz, Madison, Wis.—p. 890.

Advantage of Alternating Vegetable and Metallic Diuretics in Treatment of Edema of Congestive Heart Failure. G. Herrmann, E. H. Schwab, C. T. Stone and W. L. Marr, with assistance of Margaret E. Cate and Odelia B. Hallauer, Galveston, Texas.—p. 902.

Primary Carcinoma of the Liver: A Clinicopathologic Study. K. J. Smith, Chicago.—p. 915.

Swelling of External Genitalia in Castrated Female Baboons After Oral and Hypodermic Treatment with Female Follicular Sex Hormone. W. Schoeller, M. Dohrn and W. Hohlweg.—p. 926.

Antidotal Effect of Sodium Amytal in Strychnine Poisoning. E. E. Swanson, Indianapolis.—p. 933.

*Primary Sarcoma of Heart. J. J. Morris, Brooklyn.—p. 935.

Effects of Adrenalectomy on Cardiac Output and Blood Pressure. A. Blalock and J. W. Beard, Nashville, Tenn.—p. 941.

*New Blood Plasma Chloride Method. J. W. Cavett and C. E. Holdridge, Minneapolis.—p. 944.

Determination of Protein in Serum by Direct Micro Kjeldahl Method: Note. R. S. Hubbard and Grace E. Sly, Buffalo.—p. 946.

Rapid Method for Simultaneous Determination of Carbon Dioxide Capacity and Urea Nitrogen Content of Blood. W. Z. Fradkin and J. Siegel, Brooklyn.—p. 949.

Rose Bengal Test of Hepatic Function: Spectroscopic Method. T. L. Althausen, G. R. Biskind and W. J. Kerr, San Francisco.—p. 954.

Supersaturation of Antigenic Beef-Heart Extracts with Cholesterol and Its Effect on Sensitivity and Specificity of Complement Fixation Reaction. B. S. Levine, Chicago.—p. 958.

Complement Fixation Test in Amebiasis.—Craig bases his observations on the results of the complement fixation test on the blood serum of 1,000 persons suffering from definite symptoms of amebiasis, such as amebic "carrier" cases having no symptoms of the infection, patients in the wards of a general hospital suffering from other disease conditions than amebiasis, and patients sent to him for examination or seen by him in consultation. The technic employed by him has not differed from that described in 1929. A human hemolytic system is used, the serums to be tested are inactivated by heating at 56 C. in the water bath for half an hour, and the antigen employed is an alcoholic extract of 48 hour old cultures of Endamoeba histolytica grown on the Boeck-Drbohlav medium. The test was not considered positive unless a three or four plus reaction was obtained on a four plus scale. The specific complement fixing bodies disappear from the blood serum following antiamebic treatment and the disappearance of Endamoeba histolytica from the feces. In relapsing cases of amebiasis, the complement fixation test, which has been negative during the interval of apparent freedom from Endamoeba histolytica, again becomes positive, in rare instances even before the parasite is again demonstrable in the feces. The time of disappearance of the positive complement fixation reaction after treatment resulting in the disappearance of Endamoeba histolytica from the feces has varied between three and twenty-eight days. In 86.6 per cent of the cases the reaction disappeared within fourteen days after the cessation of antiamebic treatment, and in 96.6 per cent within twenty-one days. Persons infested with other species of amebas or with the intestinal flagellates do not give a positive complement fixation with this test unless Endamoeba histolytica is also present. The complement fixation reaction gives the strongest positive results in symptomless "carriers" or in those presenting mild symptoms of infection with Endamoeba histolytica. The test has proved of value in the diagnosis of cases of amebic abscess of the liver unaccompanied by intestinal symptoms, in the diagnosis of apparently healthy "carriers" of Endamoeba histolytica and of persons presenting atypical or mild symptoms of infection, and in the control of antiamebic treatment.

Rheumatoid Arthritis.—Stainsby and Nicholls treated 103 patients by removing diseased tonsils. Sixty showed subsequent improvement of their arthritic condition. Twenty had no other form of therapy, while eighty-three were also given streptococcus vaccine. No higher rate of improvement was noted in patients having vaccine and tonsillectomy combined than in those having tonsillectomy alone. The results in the tonsillectomy group were best in young patients and those having mild arthritis. Of thirty-five patients who had abscessed teeth removed, twenty-four showed improvement. Thirty of the thirty-five also received streptococcus vaccine therapy. The authors attribute the high percentage of improvement in these patients to the removal of abscessed teeth. Of 194 patients treated with vaccine therapy alone, sixty-nine showed improvement. The authors' results with vaccine therapy were extremely disappointing, as the low percentage of improvement may well represent the natural tendency of some patients to improve regardless of treatment.

Primary Sarcoma of Heart.—Morris reports an instance of primary sarcoma of the heart in a case which unfortunately furnished little clinical history. The tumor was a small round cell sarcoma originating in the right auricle, which, because of the apparent normal health of the deceased during the fifteen years of his life, must have been insidious in onset but after that became a rapidly growing fatal neoplasm.

New Blood Plasma Chloride Method.—In their blood plasma chloride method, Cavett and Holdridge prepared a Folin-Wu filtrate of the blood or plasma (1 cc. of blood or plasma, 7 cc. of water, 1 cc. of two-thirds normal sulphuric acid and 1 cc. of 10 per cent sodium tungstate thoroughly shaken together and filtered). They pipetted 5 cc. of the filtrate into a large test tube and added 0.2 cc. (three drops) of a fresh 5 per cent solution of sodium nitroprusside. Mercuric nitrate (1 cc. is equivalent to 1 mg. of sodium chloride) is added from a microburet until a permanent turbidity is produced on the addition of one drop. (Titration value in cc. $= X$) $\times 200 =$ mg. of sodium chloride per hundred cubic centimeters of plasma. The titration corrections (X) which Kolthoff and Bak determined for varying concentrations of corrosive mercuric chloride in water are slightly low for the Folin-Wu filtrate; therefore the titration is made directly on the Folin-Wu filtrate and the end point is easier to observe than that obtained with the methods now in use.

Journal of Thoracic Surgery, St. Louis

2: 429-532 (June) 1933

Cellular Reaction of Pleura to Infection with Mycobacterium Tuberculosis. L. G. Montgomery and W. S. Lemon, Rochester, Minn.—p. 429.

Method of Measuring Lung Volume in Dogs. H. K. Beecher and H. H. Bradshaw, Boston.—p. 439.

Effect of Laparotomy and Abdominal Distention on Lung Volume. H. K. Beecher, H. H. Bradshaw and G. Lindskog, Boston.—p. 444.

Penetrating Wounds of Chest: Studies on Experimental Hemothorax. J. C. Sandison and D. C. Elkin, Atlanta, Ga.—p. 453.

Effects of Closed Pneumothorax, Partial Occlusion of One Primary Bronchus, Phrenicectomy, and Respiration of Nitrogen by One Lung on Pulmonary Expansion and Minute Volume of Blood Flowing Through Lungs. R. L. Moore and H. W. Cochran, New York.—p. 468.

*Tensile Strength of Paralyzed Diaphragm: Preliminary Report. R. H. Meade, Jr., Philadelphia.—p. 503.

Anatomic and Physiologic Criteria for Surgical Relief of Cardiac Pain. P. Heinbecker, St. Louis.—p. 517.

Paralyzed Diaphragm.—Meade subjected six dogs to unilateral, transpleural, phrenic neurectomies. In four of them, paralysis and atrophy of the corresponding halves of the diaphragm were still present when the dogs were killed ten months later. In two, regeneration of the phrenic nerves occurred with a complete restoration of normal function and of normal gross appearance of the diaphragm in one and an uncertain restoration in the other. Studies of the tensile strength of the

two halves of the diaphragm were made which showed consistently and significantly higher figures for the paralyzed half. Whether or not the difference is a true one cannot be definitely concluded at this time. It can, however, be definitely stated that a decrease in tensile strength of the diaphragm does not result from phrenic neurectomy.

Journal of Urology, Baltimore

29: 631-762 (June) 1933

Lipomatosis or Destructive Fat Replacement of Renal Cortex: Report of Eleven Cases. H. H. Young, Baltimore.—p. 631.
*Pyelitis Cystica and Ureteritis Cystica: Report of Case Diagnosed by Urography and Confirmed by Biopsy, with an Outline of Treatment. L. Kindall, Oakland, Calif.—p. 645.
Fibroids of Urinary Bladder: Report of Case, with Unusual Complications. J. F. Geisinger, Richmond, Va.—p. 661.
Paraarenal Teratoma in Infant: Case Report. M. F. Campbell, New York.—p. 677.
Traumatic Rupture of Hydronephrotic Kidney. G. H. Ewell, Madison, Wis.—p. 685.
Unilateral Fused Kidney with Nonobliteration of Hypogastrics. E. Hess, Erie, Pa.—p. 695.
Roentgenographic Demonstration of Perirenal Lymphatics. E. W. Exley, Minneapolis.—p. 717.
Technic of Intravenous Urography in Rabbit. W. F. Mengert, Philadelphia.—p. 721.
Hourglass Deformity of Urinary Bladder. W. M. Kearns and S. M. Turkeltaub, Milwaukee.—p. 729.
Actinomycosis of Bladder: Report of Case. C. C. Herger, Buffalo.—p. 739.
Pericystitis Complicated by Acute Intestinal Obstruction. R. F. O'Neill, Boston.—p. 745.
*Treatment of Prostatitis by Injection. O. Grant, Louisville, Ky.—p. 749.

Pyelitis and Ureteritis Cystica.—Kindall reports a case of pyelitis cystica and ureteritis cystica diagnosed by urography and confirmed at operation and, so far as he can determine by a study of the literature, the first case conclusively diagnosed. Cystoscopy was of no diagnostic value, since there was no cystitis cystica present. Combined intravenous (by means of a new urographic contrast agent) and bilateral, retrograde pyeloureterograms were made throughout the study. The dilated ureters were due to obstruction of the lumen of the ureters by the cysts, mechanically causing back pressure or interfering with the functional peristalsis of the ureter. The author states that large ureteral catheters passed to the kidney pelvis and left in place for several days mechanically rupture many cysts and that the injection of silver nitrate solution at the time of removal, by its astringent action, destroys other traumatized cysts.

Treatment of Prostatitis by Injection.—Grant has applied mercurochrome directly to the interior of the infected gland in prostatitis. To do this, he first fills the bladder with water and then while keeping a guiding finger in the rectum he introduces a 6 inch, 22 gage needle through the perineum of the patient in the lithotomy position. The needle is kept in the middle line and, by close adherence to the rectal wall, the possibility of injuring the bulb is avoided. The needle can be felt to pass through the prostatic capsule by the definite increase in resistance and, once it is through this point, it can be directed to the portions of the gland at will. The hub of the needle is then attached to a Loktite syringe and a 1 per cent solution of freshly made mercurochrome is injected into the gland. The amount of fluid to be injected is gaged by the pressure felt. As the needle is withdrawn, a light flow of the fluid is maintained to sterilize the tract it makes in the perineum. From 10 to 20 cc. of mercurochrome is injected at various points throughout the gland, accompanied by gentle massage of the prostate to disseminate the drug. The treatment in the first 100 cases was confined to chronic prostatitis without any demonstrable disturbance in the vesicles. Since then the author has injected all types of infected glands, many times doing a vasopuncture and injecting mercurochrome through the vasa. In all his cases of epididymitis in which he deemed surgery advisable, he injected the prostate at the time of doing the epididymotomy. He has used this treatment in more than 400 cases and so far has not had a single untoward result. Not all cases are improved, but the proportion of cures, both from a clinical and a laboratory standpoint, has been high. The author concludes that the injection of mercurochrome promotes rapid disappearance of pus and organisms from the prostate and diminishes the duration of the disease.

Medical Journal and Record, New York

137: 477-512 (June 21) 1933

Function of Neuroglia as Protective Barrier in Development of Uremia. K. Rothschild, New Brunswick, N. J.—p. 477.
Tuberculosis of Thyroid. H. Cohen, New York.—p. 481.
Importance of Posture in Health. B. M. Canter, New York.—p. 483.
Concepts of Endocrinology. S. J. Essenson, New York.—p. 484.

New England Journal of Medicine, Boston

208: 1233-1284 (June 15) 1933

Origins of Thoracic Surgery. E. C. Cutler, Boston.—p. 1233.
*"Alcoholic" Polyneuritis: Dietary Deficiency as a Factor in Its Production. G. R. Minot, M. B. Strauss and S. Cobb, Boston.—p. 1244.
Clinical Manifestations of Early Cancer of Breast, with a Discussion on the Subject of Biopsy. F. E. Adair, New York.—p. 1250.
*Extreme Case of Pyelitis of Pregnancy Treated by Nephrostomy, with Recovery and Subsequent Successful Delivery. L. E. Phaneuf and R. C. Graves, Boston.—p. 1255.
Diagnosis of Mild Smallpox and Scarlet Fever. C. Armstrong, Washington, D. C.—p. 1257.

"Alcoholic" Polyneuritis.—Minot and his associates treated fifty-seven patients with undoubted "alcoholic" polyneuritis, who had gastric analyses performed or adequate dietary histories taken, and usually both, by a diet rich in complete proteins, minerals and vitamins. This daily diet included from 150 to 250 Gm. of beef liver pulp, 200 Gm. of orange juice, 100 Gm. of muscle meat, 500 cc. of milk, and large helpings of fresh vegetables, fruits and butter. Concentrated carbohydrate food was given sparingly. Daily about 60 cc. of cod liver oil and 12 Gm. of autolyzed yeast or extractives were given each patient, and iron when indicated. The authors believe that under this regimen recovery has been observed more uniformly and with greater rapidity than previously. However, evaluation of therapeutic results in the absence of a "yardstick" to measure such results is notoriously difficult, and in a condition of as chronic a nature as polyneuritis, in which regeneration of nerve tissue occurs only slowly at best, it is hazardous to interpret what causes benefit. Since patients were admitted in all stages of the disease and in all states of health, it was impossible to compare intelligently and statistically the results of treatment with special diets and those obtained in other ways. Furthermore, dietary treatment has been employed as a routine in recent years, so that comparisons could be made only with cases treated by other individuals, and there appear to be no published data for proper statistical comparison, while hospital records do not furnish satisfactory information for such a purpose. Alcohol itself may act not only as a poison to the nervous system but also by diminishing the effectiveness of vitamins. Cowgill has shown that the amount of vitamin B required by the organism is in some measure proportional to the total metabolism. The consumption of much alcohol may lead to an abnormal increase of daily total metabolism, since a quart of whisky furnishes at least 2,800 calories, so that an unusual demand for vitamin B might develop. The concept that dietary deficiency, especially the lack of vitamin B_1, plays an important part in the production of "alcoholic" polyneuritis is favored by the grossly deficient diets taken by the patients for a long time, and the similarity of the lesions and symptoms to those of beriberi. The seasonal variation, the precipitating influence of infection and the frequent occurrence of achlorhydria are similar to what occurs in certain known deficiency disorders. Pellagra and other dietary deficient states may occur in persons with "alcoholic" polyneuritis. If a good diet rich in protein and vitamins causes more satisfactory improvement than any other form of therapy, it only strengthens the fact that a state of deficiency causes polyneuritis in chronic alcoholism.

Pyelitis of Pregnancy Treated by Nephrostomy.—Phaneuf and Graves report a case of severe pyelitis complicating pregnancy. All the usual medical and cystoscopic measures having failed to give relief, a right nephrostomy was resorted to with satisfactory results. Two other complications developed in the form of otitis media with mastoiditis and perirectal abscess. The patient was in such a weakened condition that the complications were treated conservatively. Two small blood transfusions were administered. Labor occurred without serious mishaps at a time when the patient's general health had improved. The child gained normally. The nephrostomy sinus closed immediately following delivery. The mother, subsequent to her discharge from the hospital, had a mastoid operation performed and made a good recovery.

Pennsylvania Medical Journal, Harrisburg

36: 641-738 (June) 1933

Laboratory Methods in Diagnosis and Treatment of Arthritis. R. L. Cecil, New York.—p. 641.
*Progress Relative to Diseases of Ductless Glands. L. G. Rowntree, Philadelphia.—p. 646.
Cardiovascular Disease: Management of Patients with Heart Symptoms of Nervous Origin. J. D. Heard, Pittsburgh.—p. 661.
Id.: Clinical Comparison of Whole Leaf and "Purified Glucoside" Preparations of Digitalis. W. D. Stroud, A. W. Bromer and J. R. Gallagher, Philadelphia.—p. 663.
Id.: Precordial Pain: Review of Four Hundred Cases. R. L. Hamilton, Sayre, Pa.—p. 666.
Controlled Versus Haphazard Methods of Applying Oblique Focal Illumination in Ocular Diagnosis, with Especial Reference to Evolution of Illumination and Magnification in Examination of Anterior Segment of Eye. G. H. Shuman, Pittsburgh.—p. 670.
Urinary Symptoms of Extra-Urinary Disease. E. J. McCague, Pittsburgh.—p. 675.
Diagnosis and Treatment of Some Laryngeal Conditions. R. F. Ridpath, Philadelphia.—p. 678.

Diseases of Ductless Glands.—Rowntree states that hormone treatment in the form of substitution therapy, if properly applied, as a rule is effective in its immediate results, but these are of short duration requiring frequent administration of the hormone concerned. Administration of hormones has been almost always unsatisfactory and completely ineffectual if given by mouth, except in the case of desiccated thyroid in hypothyroidism. The following hormones have proved their effectiveness clinically and can be advocated therapeutically: insulin in diabetes mellitus; desiccated thyroid or thyroxine in myxedema and early in cretinism; ampoules of pitressin in diabetes insipidus; parathyroid extract in parathyroid tetany; and eschatin, the cortical hormone of the suprarenals, in Addison's disease. Eschatin has already established its value in a limited clinical trial so far as immediate results are concerned. Hormone therapy is assuming a new and important part in relation to surgery in diminishing the operative risk and mortality and by contributing to the postoperative recovery in patients afflicted with diseases of the ductless glands. The study of patients with tumors of the endocrine glands reveals, as a rule, the clinical manifestations of excessive amounts of the hormone concerned. The surgical removal of such tumors results, as a rule, in the temporary appearance of a paradoxical deficiency demanding the temporary administration of the hormone concerned. Tumors of the endocrine glands emphasize the importance of the constitutional effects of tumors and call for the more comprehensive study of the problem involved, in relation to other types of tumors. The recent and important advances made in the fundamental fields have tremendously enhanced the opportunity for true service to the sick. This concerns practically all the major fields of practice, especially medicine, pediatrics, gynecology, urology and surgery.

Rhode Island Medical Journal, Providence

16: 81-96 (June) 1933

Review of Recent Scarlet Fever Literature. L. J. Smith, City of Warwick.—p. 81.
Progress Toward Voluntary Sex Determination. F. S. Hale, Providence.—p. 84.

Tennessee State Medical Assn. Journal, Nashville

26: 225-272 (June) 1933

Discussion of the Reports of the Committee on the Costs of Medical Care. O. West, Chicago.—p. 225.
Functional Uterine Bleeding. J. C. Burch, Nashville.—p. 233.
In Behalf of Roentgen Therapy. H. G. Reaves, Knoxville.—p. 235.
*Phenol in Treatment of Tetanus. W. A. Bryan, Nashville.—p. 242.
My Experience with Glaucoma. E. C. Ellett, Memphis.—p. 247.
Anesthesia from Standpoint of the Surgeon. C. P. Fox, Jr., Greeneville.—p. 255.

Phenol in Treatment of Tetanus.—Bryan gives the three plans of treatment for tetanus: (1) the specific serum plan, (2) the magnesium sulphate plan, and (3) the phenol plan. Some physicians combine two of these plans as a routine method. The author treated six patients with phenol, all of whom recovered. Several of these had antitetanic serum before the phenol treatment was begun, and during the treatment. They were placed on phenol intravenously in 1 per cent aqueous solution. The doses were usually given twice daily. Two of these cases were mild, one was fairly severe, three were severe. The maximum dose often far exceeds 1.5 Gm. of phenol every twenty-four hours.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

8: 159-226 (June) 1933

Studies in Anemias of Infancy and Early Childhood: Part IV. Hemolytic (Erythronoclastic) Anemias of the Neonatal Period, with Especial Reference to Erythroblastosis of the New-Born. L. G. Parsons, J. C. Hawksley and R. Gittins.—p. 159.
Id.: Part V. Hemolytic (Erythronoclastic) Anemias of Later Infancy and Childhood, with Especial Reference to Acute Hemolytic Anemia of Lederer and the Anemia of von Jaksch. L. G. Parsons and J. C. Hawksley.—p. 184.
Gastromegaly in Children. H. G. Garland and B. S. Platt.—p. 211.
*Plasma Phosphatase in Rickets and Other Disorders of Growth. Jean Smith.—p. 215.
Normal Hemoglobin Level During the First Year of Life: Revised Figures. Helen M. M. Mackay.—p. 221.

Plasma Phosphatase in Rickets.—Smith found the average plasma phosphatase of ten normal breast-fed healthy infants to be 0.248 unit, with a range of from 0.2 to 0.3 unit. The plasma phosphatase of a group of healthy infants fed on artificial foods, but with additional fat-soluble vitamins A and D and with water-soluble C, ranged from 0.2 to 0.36 unit, with a mean value of 0.3 unit; i. e., approximately the same as that of healthy breast-fed infants. The plasma phosphatase is increased in active rickets. In a group of sixteen cases of radiologic rickets, the figures varied from 0.41 unit to 1.29 units, with an average of 0.772 unit. In a series of infants fed on artificial foods but not receiving extra fat-soluble vitamins, the average plasma phosphatase was 0.52 unit, with a range of from 0.4 to 0.702 unit. As long as these vitamins were withheld the plasma phosphatase increased, and when these were added the values fell to within normal limits. Conditions characterized by cessation of growth, such as cretinism, scurvy and achondroplasia, are associated with an abnormally low plasma phosphatase. All infants fed on artificial foods should be given additional fat-soluble vitamins within a few weeks of birth.

British Journal of Experimental Pathology, London

14: 125-206 (June) 1933

Glycine Tolerance in Experimental Shale Oil Liver Necrosis. C. Polson.—p. 125.
Epizootic Disease Occurring in Breeding Stock of Mice: Bacteriologic and Experimental Observations. T. J. Mackie, C. E. Van Rooyen and E. Gilroy.—p. 132.
Renal Lesions in Hypervitaminosis D: Observations on Urinary Calcium and Phosphorus Excretion. J. Gough, J. B. Duguid and D. R. Davies.—p. 137.
The O-Receptor Complex of Bacillus Proteus X_{19}. P. B. White.—p. 145.
Cortical Lipoid of Mouse Suprarenal After Unilateral Suprarenalectomy. R. Whitehead.—p. 149.
Calcium Content of Cerebrospinal Fluid in Normal Pregnancy and in Eclampsia. D. F. Anderson.—p. 155.
Blood Group Distribution in Eastern Counties of England. M. Penrose and L. S. Penrose.—p. 160.
*Immunologic Studies with Virus of Psittacosis. S. P. Bedson.—p. 162.
Hay Fever: I. A Study of Reagin-Allergen Mixtures. D. Harley.—p. 171.
Filtration of Rift Valley Fever Virus Through Graded Collodion Membranes. J. C. Broom and G. M. Findlay.—p. 179.
So-Called Reversed Selective Bacteriostasis. L. P. Garrod.—p. 182.
Nitrogen and Vitamin Requirements of Bacillus Typhosus. P. Fildes, G. P. Gladstone and B. C. J. G. Knight.—p. 189.
Filtration of Virus of Borna Disease Through Graded Collodion Membranes. W. J. Elford and I. A. Galloway, with an appendix by J. E. Barnard.—p. 196.

Immunologic Studies with Virus of Psittacosis.—The investigations of Bedson bring out that the serums of persons convalescent from psittacosis possess no demonstrable neutralizing power but will fix complement in the presence of a psittacosis antigen. Similarly, the serums of hyperimmunized guinea-pigs contain considerable antibody demonstrable by complement fixation or agglutination but only a low neutralizing power. The author discusses the value of the complement fixation reaction in the diagnosis of psittacosis. Virus that has been rendered inactive by means of formaldehyde can evoke a considerable degree of immunity in the mouse. Virus treated with solution of formaldehyde in wood alcohol and water can be steamed for twenty minutes without much loss of its immunizing power, whereas steaming alone has a deleterious action.

British Medical Journal, London

1: 1091-1138 (June 24) 1933

Anemia in General Practice. L. J. Witts.—p. 1091.
Health of Antimony Oxide Workers. T. Oliver.—p. 1094.
Infra-Red Rays, Comfort and Health. L. Hill.—p. 1096.
*Rehalational Anesthesia: Method of Utilizing Recent Advances in Anesthetic Administration. J. Halton.—p. 1097.
*Combined Sclerosis Without Anemia Treated by Intensive Iron Therapy: Case. W. Sargant, with an introduction by W. Harris.—p. 1100.
Water Excretion as Measure of Equilibrium with Environment. D. N. Parfit.—p. 1102.

Rehalational Anesthesia.—During the past two years, Halton has evolved a technic of rehalational anesthesia, which takes its place between perhalation with the ordinary mask and rebreathing into a bag. The apparatus consists of a small cylinder of oxygen and a J size carbon dioxide sparklet, which are strapped together and tubes from which are brought to a Y-piece, whence a further tube leads the gases to the mask; a 4 ounce ether drop bottle with a dropper delivering an even drop in any position, and a modified Ogston mask. A section of motor car inner tube slipped over the frame takes the place of the towel or lint which Ogston suggested, a short length of metal tube is clipped to one of the uprights, and the gases are, by this means, led to the depths of the mask. Ether, chloroform and ether mixture or ethyl chloride can be employed. With anesthesia fully established, the carbon dioxide is turned off and the patient is evolving and rebreathing his own carbon dioxide from the mask chamber. Respirations are deep and full, and, when there is a slight tendency to cyanosis, sufficient oxygen is turned on to counteract this. It will be found that ether can be dropped almost as sparingly as chloroform. No freezing of the gauze will take place, provided the drops are not directed constantly to one portion of the mask, and, unless a deep level of anesthesia is required, when the whole of the gauze is moist the drops should be directed to the sides of the mask. A constant and regular ether dropping is essential as deep levels of anesthesia are reached much more rapidly than in open administration. For recovery the patient is given six full breaths of carbon dioxide and is allowed to inhale, with the resultant increased respiration, an atmosphere rich in oxygen. When atropine only has been used in premedication, the patient leaves the operating room phonating with his essential reflexes present and is usually awake in a further sixty to ninety minutes. When morphine is used, the final recovery is delayed. The method depends only on facts; the actual technic can therefore be varied infinitely to suit the individual requirements of any anesthetist.

Intensive Iron Therapy in Combined Sclerosis.—Sargant presents a case of combined sclerosis without anemia. On admission to the hospital there was marked weakness in both arms and legs, and the patient could not walk without help. Any attempt to walk was accompanied by gross ataxia. Indefinite areas of anesthesia were found on the forearms, legs and abdomen. The abdominal reflexes were all absent. Knee jerks and ankle jerks were exaggerated, and a bilateral extensor response was present. There was an additional loss of all positional sense in the toes, and the sense of vibration was much impaired in both legs. A test meal showed complete achlorhydria in all specimens and an excess of mucus in the resting juice, which was of small quantity. The stomach emptied in one and a half hours. The blood count was: red cells, 4,960,000 per cubic millimeter; white cells, 7,000 per cubic millimeter; hemoglobin, 88 per cent; color index, 0.9; and the size of the cells was normal. The cerebrospinal fluid tests were all normal, and a roentgenogram of the spine revealed no lesion. The patient was treated with palliative measures, such as massage and exercises, for five weeks, but he became steadily worse. Pills of ferrous carbonate, 150 grains (9.85 Gm.) a day, were now given, massage was discontinued, and no other accessory treatment was allowed. There was an increase in the strength in the legs about three weeks after the iron treatment was begun, the tinglings grew less and the girdle pains disappeared. When walking was first attempted, it was impossible to keep the patient on his feet because of his gross ataxia and loss of the positional sense of the feet. Ten weeks after beginning treatment he was able to go home and to walk a little unsteadily by himself. He has been attending the hospital at regular monthly intervals since and can now walk well without aid, even being able to stand for short periods with his feet together and eyes closed without falling. His ataxia is still noticeable when he is made to turn round quickly. All abdominal reflexes and ankle jerks are present; the knee jerks are not exaggerated, and areas of anesthesia are now difficult to detect. The vibration sense in the legs has improved. The blood picture is: red cells, 5,460,000 per cubic millimeter; hemoglobin, 95 per cent. A bilateral extensor response is still present. The patient continues to take a daily dose of 100 grains (6.5 Gm.) a day of pills of ferrous carbonate and has now been under treatment for more than six months.

Journal of Laryngology and Otology, Edinburgh

48: 389-456 (June) 1933

Early or Late Operation in Acute Mastoiditis. D. Guthrie.—p. 400.
Id. C. A. S. Ridout.—p. 408.

Lancet, London

1: 1217-1270 (June 10) 1933

Complications of Specific Fevers, with Especial Reference to Scarlet Fever and Measles. C. R. Box.—p. 1217.
Some Observations on Preoperative Procedure. E. R. Flint.—p. 1223.
Treatment of Hay Fever by Desensitization and with Acid. H. Beckman.—p. 1227.
Treatment of Acute Appendicitis. R. J. M. Love.—p. 1229.
*Method for Enumeration of Blood Platelets. J. N. Cumings.—p. 1230.
Acute Traumatic Mastoid Abscess. M. Yearsley.—p. 1232.
*Operation for Spondylolisthesis. B. H. Burns.—p. 1233.
Agranulocytic Angina with Septicemia. G. S. Erwin.—p. 1234.

Method for Enumeration of Blood Platelets.—In his modification of Flössner's method of counting blood platelets, Cumings adds mercuric chloride to Tyrode's solution without the dextrose to give a strength of 1:10,000 in order to prevent any bacterial growth; five parts of this are added to one part of 1 per cent sublimate saline solution immediately before use and without filtering either fluid. Blood is obtained from the ear by pricking through a drop of the diluting fluid and allowing the blood to flow directly into the diluting fluid without using any local pressure. The contents are thoroughly mixed with a rod or glass tubing coated with petrolatum. The exact degree of dilution is that which, by experience, is shown to give the greatest ease of enumeration. The ear is carefully dried and blood taken for a red blood corpuscle count. A drop of the diluted blood is placed in a counting chamber, and the coverslip applied. After the red cells and platelets have settled, the platelets are counted against the red cells, a thousand of the latter being enumerated. It is convenient to have about 150 red cells in a field. The author has not observed any clumping of the platelets, red cell clumping has occurred only in one case of hemorrhagic purpura, and no red cell degeneration has been observed in some hundreds of counts, even when kept for twenty-four hours. His observations confirm those of Flössner and have given a total count of about 400,000 per cubic millimeter after keeping the diluted blood for three hours. The author suggests adding brilliant cresyl blue to Tyrode's solution as an alternative to Toison's solution for the diluting of blood in performing red and white blood corpuscle counts.

Spondylolisthesis.—Burns inserted a graft from the front through the body of the fifth lumbar vertebra and the fifth intervertebral disk into the sacrum in a case of spondylolisthesis. The patient, a boy aged 14, had had pain in the small of the back and in the calves after jumping from a height three months previously. Roentgenography showed that there was a fracture in the laminae of the fifth lumbar vertebra between the roots of the upper and lower articular processes, and that the body of the fifth lumbar vertebra had slipped forward. A plaster bed having been made previously, the operation was performed. The patient was placed in the Trendelenburg position, and the abdomen was opened by a left paramedian incision. The intestine was packed off and an incision was made through the posterior parietal peritoneum. The anterior aspect of the fifth lumbar vertebra was cleared by blunt dissection, and the left common iliac vein was gently retracted upward and carefully guarded. A hole was drilled almost vertically downward. A graft was then taken from the tibia and driven home with a punch. The posterior peritoneum was then sutured and the abdomen closed. The convalescence was uneventful. The boy was allowed to walk two months after the operation and had no pain. It is possible that the inter-

vertebral disk is not the ideal situation for a graft, in that the graft might become absorbed, but roentgenograms show that this is not the case after seven weeks. Should it become absorbed, a steel pin can be used instead.

1: 1271-1326 (June 17) 1933

Complications of Specific Fevers, with Especial Reference to Scarlet Fever and Measles: II. Respiratory Lesion. C. R. Box.—p. 1271.
Infections of Hand. N. L. Eckhoff.—p. 1276.
Etiology of Nocturnal Enuresis. W. H. de B. Hubert.—p. 1281.
Nature of Hematopoietic Factor in Marmite. Lucy Wills.—p. 1283.

1: 1327-1378 (June 24) 1933

Complications of Specific Fevers, with Especial Reference to Scarlet Fever and Measles: III. Dealing Chiefly with Surgical and Pyogenic Lesions. C. R. Box.—p. 1327.
*Intestinal Tuberculosis: Its Early Diagnosis, Treatment and Prevention. A. I. G. McLaughlin.—p. 1333.
Rheumatic Affections of Tendon and Muscle Attachments ("Tendinitis"). G. Kahlmeter.—p. 1338.
Occupational Asthma, with Reference to Wool Sensitivity. H. H. Moll. —p. 1340.

Intestinal Tuberculosis.—McLaughlin divides the methods of early diagnosis of intestinal tuberculosis into radiologic, clinical and laboratory. He groups the methods of treatment under four headings: heliotherapy and high vitamin diet, dietetic, medicinal and symptomatic, and surgical. He believes that the prevention of secondary intestinal tuberculosis depends primarily on the early diagnosis and successful treatment of the pulmonary tuberculosis. The patients should be warned against swallowing the sputum, as this is the chief mode of infection of the intestine in human tuberculosis. Constipation should be avoided and any catarrhal condition of the intestine should be treated. Patients who show achlorhydria should receive regular doses of hydrochloric acid; although the acid has little or no antiseptic action against tubercle bacilli, when achlorhydria is present the ulcers are said to occur higher in the ileum and jejunum. The general resistance of the patient to infection should be built up by an adequate diet and particularly by a large supply of vitamins A, C and D, in the form of cod liver oil and tomato juice or orange juice. All patients with pulmonary tuberculosis should be given the high vitamin diet as a routine measure. At Ray Brook Hospital, every patient with pulmonary tuberculosis takes half an ounce of cod liver oil and 3 ounces of tomato juice after each meal, and as a result the incidence of tuberculous enteritis is considerably lower than before the procedure was adopted.

Medical Journal of Australia, Sydney

1: 727-756 (June 17) 1933

*The Quantitative Wassermann Reaction as a Guide to Treatment of Syphilis: Preliminary Communication. J. Love and Hildred M. Butler.—p. 727.
History and Elimination of Hookworm at Nauru: Short Note. A. M. B. Grant.—p. 733.
Indications for and End-Results of Tonsillectomy. R. H. Bettington. —p. 734.

Wassermann Reaction and Syphilis.—In an endeavor to make the Wassermann test more strictly quantitative, Love and Butler increased their dilutions of the patient's serum to include 1:40, 1:80 and 1:160 as well as the 1:5, 1:10 and 1:20 already in use. In order to save both time and reagents, all serums were first tested in a dilution of 1:5 only. Those showing complete fixation at that dilution were then tested over the whole range. No evidence of zone phenomenon was obtained in 5,000 tests in which each serum was tested in dilutions of 1:5, 1:10 and 1:20. When fixation was not complete in any tube, it was found sufficiently accurate to determine with the naked eye the proportion of cells unlysed by comparing the tube with the controls and thus to determine in what dilution complete fixation would have occurred. When readings were made in this way, and also from dilutions at shorter intervals, they were so close as to lead the authors to believe that this possible error would not significantly alter the results. The reciprocal of the degree of dilution giving complete fixation was the Wassermann index of the serum tested. A chart similar to a Vernes chart was prepared, on which the Wassermann index was plotted against time, the treatment given also being shown. In this way a chart was obtained that indicated the "severity" or "degree of syphilization" of the patient at any given time and the progress of the case and the response to treatment. The authors present ten such charts showing the progress of the Wassermann reaction when treatment is instituted at the various stages (that is, primary, secondary or tertiary) of the disease, and they think that they furnish them with a plain and graphic guide to treatment.

Chinese Medical Journal, Shanghai

47: 441-544 (May) 1933

Researches Concerning Typhus in North China. S. Gajdos and J. Tchang.—p. 441.
Cultivation of Tubercle Bacilli in Vitro and in Vivo Within Diffusion Membrane and Earthenware Vessel. P. C. Hou.—p. 452.
*Tuberculosis of Mesenteric Lymph Glands, Simulating Organic Disease of Stomach. H.-C. Chang.—p. 456.
Sensory Test for Chinese: Recognition of Chinese Characters Traced on the Skin of Soldiers with Brain Injuries. S. B. Wang and R. S. Lyman.—p. 468.
Medical and Dental Education. L. G. Kilborn.—p. 483.
Family Limitation Among Educated Chinese Married Women: Study of Practice and Attitudes of One Hundred and Twenty Women. H. D. Lamson.—p. 493.

Tuberculosis of Mesenteric Glands.—Chang gives the histories of six cases of tuberculosis of the mesenteric lymph nodes in which serious gastric complications occurred and intrinsic organic disease of the stomach was simulated. Accurate diagnosis was impossible prior to the exploratory laparotomy or postmortem examination. Complete recovery took place in all four patients in whom relief of the pyloric obstruction followed gastro-enterostomy. There seemed to be little doubt that one of the other patients would have been similarly benefited had he consented to the operation. The other death was attributable to disseminated tuberculosis. Serious complications do not necessarily impair the prospect of a clinical cure, provided they are successfully combated. As the treatment of this condition, like the treatment of tuberculosis in general, depends mainly on good hygiene and dietary management, it necessitates, as a prerequisite, early correction of any dysfunction of the digestive tract. Laparotomy offers the only chance of relieving gastric obstruction of this type and should always be resorted to, not only for diagnostic but also for therapeutic possibilities. This generalization applies to most cases of pyloric obstruction, regardless of the apparent etiology. Removal of the diseased gland is not necessary and may be attended with risk. It was not attempted in any of the author's four patients who were operated on.

Japanese Journal of Gastroenterology, Kyoto

5: 1-36 (April) 1933

Estimation of Free Hydrochloric Acid in Human Gastric Juice (Studies on Acidimetry of Gastric Juice. II). M. Hori.—p. 1.
Error of Titrated Total Acidity of Human Gastric Juice (Studies on Acidimetry of Gastric Juice. III). M. Hori.—p. 13.
*Influence of Gallbladder, Oddi's Muscle and Duodenum on Outflow of Bile: Report I. Injection of Visceral Nerve Poisons and Pituitrin. K. Shi.—p. 19.
*Id.: Report II. Observations Made After the Injection of Some Substances in Duodenum. K. Shi.—p. 26.
Influence of Fat-Soluble Vitamin on Amounts of Cholesterol Bodies in Bile in Rabbits. S. Kusaka.—p. 31.

Outflow of Bile.—According to the experiments of Shi, the intravenous injection of from 0.3 to 0.4 cc. of a 1 per cent solution of pilocarpine hydrochloride causes in dogs an increase of the internal pressure of the gallbladder, of the excretion of bile, of the tension of the duodenum and of Oddi's muscle, and then of the outflow of bile containing bladder bile. The intravenous injection of atropine causes a decrease of the internal pressure of the gallbladder, of the excretion of bile, of the tension of the duodenum and of Oddi's muscle, and then of the outflow of the bile. The intravenous injection of epinephrine causes a temporary decrease in the internal pressure of the gallbladder, in the tension of the duodenum and of Oddi's muscle, and a temporary outflow of liver bile. The intravenous injection of solution of pituitary causes a slight increase of the internal pressure of the gallbladder, depression of the tension of the duodenum and of Oddi's muscle, and an outflow of bile containing bladder bile.

Outflow of Bile After Injection of Substances into Duodenum.—Shi states that the infusion of milk or peptone into the duodenum of a dog causes an increase of the internal pressure of the gallbladder, a depression of the tension of Oddi's muscle and of the duodenum and, therefore, an outflow of bladder bile. The infusion of the duodenum with magnesium

sulphate causes a depression of the tension of Oddi's muscle and of the duodenum and then the outflow of bile containing bladder bile, without causing an increase in the internal pressure of the gallbladder.

Paris Médical

2: 105-132 (Aug. 5) 1933

Blood Dyscrasias in 1933. P. Harvier and J. Bernard.—p. 105.
*Hemopathies Due to Benzene. P. Emile-Weil.—p. 112.
Acute Subleukemia Starting with Hemogenobemophilic Syndrome. P. Merklen, H. Chaumille and L. Israel.—p. 116.
Blood Aplasias. A. Chevallier.—p. 119.
Diagnosis of Hemolytic Icterus. E. Benhamou.—p. 126.

Benzene Poisoning.—Emile-Weil states that the increased use of benzene in industries has resulted in an increase of benzene poisoning. Benzene intoxication from inhalation of the benzene vapors most frequently results in injury to the blood and the hematopoietic organs. The injury may cause not only hypoplasias of the erythrocytic or leukocytic system but hyperplasias of the leukocytic system as well. The anemias produced by benzene vary from latent or light forms to severe cases of pernicious anemia. The author thinks that the hemorrhagic tendency which often accompanies the light anemias of benzene intoxication possibly contributes to the production of the anemia, and that at all events it is a prodromal sign of a syndrome of a grave anemia with purpura hemorrhagica, which is best called aleukemia hemorrhagica. This is the most common form of severe benzene intoxication. It presents no differences from the hemorrhagic purpura caused by gold salts or arsphenamine. Death occurs within a few days in the severe cases; when the poisoning is less severe, slow recovery may occur. Benzene poisoning may have a very early effect on the leukocytes. Persons in apparent good health, having no clinical signs of anemia, may have a slight leukopenia, and cases have been reported presenting a light anemia and a severe leukopenia, but no true agranulocytic syndrome has been described as yet. The occurrence of hyperplasias as a result of benzene intoxication is rare, but both acute and chronic cases of leukemia have been reported. Lignac was able to produce some cases of leukemia and some of lymphosarcoma in mice by administration of benzene. This contradictory effect of benzene does not seem so strange in view of the fact that roentgen rays may produce either aplasias or hyperplasias of the blood and hematopoietic organs.

Prensa Médica Argentina, Buenos Aires

20: 1729-1772 (Aug. 9) 1933. Partial Index

Cisternal Therapy: Technic of Injections in Cisterna Magna. M. R. Castex, L. E. Ontaneda and F. M. Solanet.—p. 1729.
Therapy of Posterior Deviation of Uterus. E. Nicholson.—p. 1745.
Cerebrospinal Meningitis Caused by Pfeiffer's Bacillus: Case. M. Margulis.—p. 1749.
*Influence of Anesthesia on Alkali Reserve. S. Schere.—p. 1751.

Influence of Anesthesia on Alkali Reserve.—Schere reviews the literature on the rôle of anesthesia in the changes of the alkali reserve observed after surgical interventions. He found that all authors agree that general anesthesia, especially if performed with chloroform, brings about an intoxication and a state of shock producing a lowering of the alkali reserve. Various theories, such as the liberation of phosphoric acid by the muscles and its storage in the blood with free elimination of alkaline ions, the increased production of lactic acid, and the inhibition of the respiratory center under the influence of anesthesia, have been given as an explanation for the appearance of postoperative acidosis. However, there has not been a satisfactory explanation, but the authors agree that it is a "non-compensated" acidosis. Cannon believes that there exists a great parallelism between the fall of the blood pressure and the diminution of the alkali reserve. Schere believes that the arterial hypotension which follows general and spinal anesthesia is the cause of acidosis observed after surgical interventions performed with those types of anesthesia. The author studied the postanesthetic changes of the alkali reserve in children. He determined the maximal, mean and minimal values of the alkali reserve in thirty-five children, immediately before and after the administration of the anesthetic, and also twenty-four hours and forty-eight hours after the operation. The operations performed in those children were of various kinds. Ether was used in twenty-two cases, chloroform in eight, and local anesthesia in five. The author concludes that general anesthesia by ether or chloroform produces a great lowering of the alkali reserve, more pronounced in the case of chloroform than in that of ether, and that the return of the acid-base equilibrium to normal is more rapid with ether than with chloroform, being normal forty-eight hours after the operation. This does not happen in children who receive chloroform anesthesia. Local anesthesia does not produce any variation of the alkali reserve.

Beiträge zur klinischen Chirurgie, Berlin

158: 113-224 (Aug. 16) 1933

*Arthropneumoroentgenography. J. Oberholzer.—p. 113.
Diagnosis and Results of Treatment in Injuries of Menisci. E. Spira. p. 157.
Nontuberculous Psoas Abscesses in Childhood. F. Klages.—p. 171.
*Contribution to Ambulatory Treatment of Varicose Ulcers of Leg. J. Marx.—p. 181.
*Acute Appendicitis in Advanced Age. W. Arnold.—p. 187.

Pneumoroentgenography of Knee Joint.—Oberholzer states that an ordinary roentgenogram of the knee joint gives but little information regarding the menisci, Hoffa's fat bodies, the crucial ligaments and the relations of the capsule. Arthroendoscopy after the injection of nitrogen gas, as practiced by Bircher, has not given the desired result. The so-called positive contrast mediums capable of producing shadows in a roentgenogram, such as iodized oils, have the drawback of giving shadows too thick for a finer study of anatomopathologic details. Injection of negative contrast mediums, such as nitrogen, oxygen or atmospheric air, proved of value in recognition of lime and cartilaginous loose bodies, as well as in recognition of Hoffa's disease. In order to combine the advantages of both the positive and the negative contrast mediums, a combination of the two was attempted. A small amount, 2 or 3 cc., of the positive contrast medium was injected into the knee joint and distributed by massage, after which the joint was filled with oxygen gas. The positive medium coats the joint capsule, the menisci, the crucial ligaments and the cartilage. The introduction of the negative medium further intensifies the delineation of structures. Of the positive mediums experimented with, sodium iodide was found too irritating to the synovial membrane, while sodium bromide did not give sufficient contrast. Iodized oils were incapable of fine division and frequently clumped into masses which gave rise to erroneous interpretations. Iopax proved to be too painful. Methiodal seemed to possess all the qualifications required. It is nonirritating, is capable of fine division and gives satisfactory shadows. In Bircher's clinic, 700 arthropneumoroentgenograms have been carried out by the use of the combination of methiodal and filling of the joint with oxygen gas. The author concludes that pneumoroentgenography of the knee joint is a safe procedure. It gives a clear presentation of the structures of the normal knee. It enables one to recognize in a high percentage of cases injury to the menisci, the crucial and lateral ligaments, the joint capsule and the Hoffa bodies. The diagnosis of Laewen's disease and of osteitis dissecans is placed on a more secure basis. Diseases of the capsule can be diagnosed with frequency. Follow-up observations with this method demonstrated a partial or complete regeneration of a resected meniscus in a majority of cases after a lapse of about two years. The method has its limitations and not all the types of trauma or joint disease are rendered recognizable by it.

Ambulatory Treatment of Varicose Ulcers of Leg.—Marx reports on the use of the rubber sponge in the ambulatory method of treatment of varicose ulcers of the leg. The method consists in cleansing the ulcerated area and covering it with a layer of dry gauze one finger thick over which a rubber sponge, reaching for two finger breadths beyond the ulcerated area, is applied. The sponge is secured in place by an elastic bandage reaching from the toes to the knee. The patient is encouraged to walk and to exercise his legs. The dressing is changed once every two days. The skin in the neighborhood of the ulceration remains dry because of the absorbing quality of the rubber sponge. Circulation in the limb is improved because of the muscular activity and the effect of elastic compression by the sponge on the venous return. The method was applied in thirty-four patients with indolent ulcers which proved refractive to treatment with rest in bed or Unna's paste boot. Complete healing was brought about in all cases in from three to twelve weeks.

Acute Appendicitis in the Aged.—According to Arnold, acute appendicitis in the aged is a relatively frequent disease. Among 2,257 patients operated on for acute appendicitis in the clinic of H. Klose in Danzig, 172 were past the age of 50, an incidence of 7.6 per cent. Old age, therefore, is no argument against a diagnosis of appendicitis; on the contrary, one should always consider it in instances of obscure abdominal disease in the old. One should not be misled by an incomplete picture and the frequent absence of a severe general reaction. Accurate history and a careful evaluation of all symptoms constitute the most important diagnostic safeguards against error. Acute appendicitis of the aged appears frequently as a destructive gangrenous process. The grave pathologic observations are often in striking contrast to the relatively mild clinical picture. The author found that a number of his patients presented a clinical picture similar to that seen in the young. In some, the disease picture was characterized by the predominance of local symptoms over the general, and the gravity of the situation was frequently unrecognized by the doctor and the patient. This was particularly true of obese patients. In some, the general symptoms of an acute attack found so little expression that the patient became aware of the situation only after perforation had taken place. Finally, there was a group in which correct diagnosis was hardly possible and which was recognized only at operation. These patients are often operated on because of a diagnosis of ileus. Contrary to the experience of other authors, the so-called neoplastic form of appendicitis, as well as appendicitis in a hernial sac, did not play a prominent part in the author's material. Conservative treatment of appendicitis in the aged is even less justified than in the young, and early operation is productive of excellent results just as in appendicitis of the young. An age limit does not exist for the early operation. The author is opposed to inhalation anesthesia and finds spinal anesthesia best suited to these cases.

Klinische Wochenschrift, Berlin

12: 1241-1272 (Aug. 12) 1933

Vitamin B_2. P. György, R. Kuhn and T. Wagner.—p. 1241.
*Pancreatropic Action of Extracts from Anterior Lobe of Hypophysis. K. J. Anselmino, L. Herold and F. Hoffmann.—p. 1245.
Roentgenologic Aspects of Coronory Sclerosis. G. W. Parade and F. Kuhlmann.—p. 1247.
Electrocardiographic Aspect of Cardiac Fibrillation in Sudden Death from Heart Failure. F. Penati.—p. 1249.
*Increase in Rest Nitrogen in Serious Cases of Poisoning. L. Popper and A. Schechter.—p. 1252.
Determination of Basal Metabolism by Means of Read's Formula. H. Olmes.—p. 1252.
Uricolysis. W. Schuler.—p. 1253.
Mastic Reaction of Cerebrospinal Fluid with New Salt Medium (Titromastic Reaction). A. Axen.—p. 1254.
Nicotine Content of Smoke in Cigarets With and "Without" Nicotine. H. Schlossmann.—p. 1255.
Methylglyoxal in Urine and in Cerebrospinal Fluid of Nurslings with Nutritional Disturbances and Toxic Symptoms and in Experimental B_1 Avitaminosis of Dogs and Rats. A. Geiger and A. Rosenberg.—p. 1258.

Pancreatropic Action of Extracts from Anterior Lobe of Hypophysis.—According to Anselmino and his associates, clinical as well as anatomopathologic observations indicate a relation between the anterior hypophysis and the pancreas. In acromegaly, for instance, there is frequently a considerable increase in the pancreas, and in young diabetic patients a shrinkage of the eosinophil cells of the anterior hypophysis has been noted. In order to gain more insight into this interrelation, the authors resorted to animal experiments. Young rats were given from six to seven injections of extract of the anterior lobe of the hypophysis and then were killed. The histologic examination of the pancreas of these animals revealed an enlargement of the islands of Langerhans and a fusion of several island complexes, also an increase in young, newly formed islands. The authors are as yet not in a position to state whether or not these changes are the result of the action of a special substance. They only gained the impression that the pancreatropic substance, although it largely resembles the gonadotropic and the thyrotropic substances in its physical and chemical properties, does not seem to be identical with them.

Increase in Rest Nitrogen in Serious Cases of Poisoning.—Popper and Schechter point out that in cases of severe poisoning the rest nitrogen of the blood is sometimes increased to a degree that does not correspond to the clinical aspects. They determined the rest nitrogen of a number of patients with severe poisoning. In the majority of cases the poisoning was caused by carbon monoxide, compound solution of cresol or barbituric acid preparations. In the patients in whom the poisoning was mild, the rest nitrogen values were within normal limits while in the comatose patients the rest nitrogen reached from 90 to 100 mg. per hundred cubic centimeters, but after a short while, sometimes within a few hours, the rest nitrogen decreased again to 40 mg. The rise in the rest nitrogen was always accompanied by an increase in the urea content. However, indican and the other substances retained in cases of renal insufficiency were not increased. The authors point out that in patients in whom the increase in rest nitrogen is the result of renal insufficiency, as for instance in poisoning caused by corrosive mercuric chloride, the increased rest nitrogen requires a much longer time to recede than in the cases studied by them, and renal disturbances were not demonstrable in their patients. They show that the increase in the blood urea is not caused by a disturbance in the elimination of urea but is rather due to the fact that the organs of urea production and storage, that is, primarily the liver, give off larger amounts. But since there are no signs of impairment of the liver the authors conclude that the increase in the urea, as well as in the rest nitrogen, is caused by a disturbance in the central nervous regulation.

Medizinische Klinik, Berlin

29: 1067-1098 (Aug. 4) 1933

*Acute Diarrheal Disturbances of Nurslings. B. de Rudder.—p. 1067.
Estimation of Cardiac Disorders in Practice of Sport Physician. E. Jokl and G. W. Parade.—p. 1070.
Pathogenesis of Pyuria in Nurslings. M. Frank.—p. 1074.
*Agranulocytosis Following Brain Trauma. A. Bingel.—p. 1076.
Bilateral Ovarian Blastoma of Brenner Type. E. Weinzierl.—p. 1078.
Necrosis of Myocardium Following Status Epilepticus. M. Winternitz.—p. 1080.
Primary Tuberculosis of Brachial Biceps. K. Gebhardt.—p. 1081.
Eye as Test Object for Radium Action. W. Altschul.—p. 1082.
Electrolyte Threshold Determination in Blood Serum. W. Dopfer.—p. 1083.
Experiences with Anesthesia Induced by Intravenous Injection of a Sodium Salt of a Barbituric Acid Derivative. O. Honcamp.—p. 1085.

Acute Diarrheal Disturbances in Nurslings.—De Rudder says that three factors should be considered in the treatment of a nursling with diarrhea: the general condition of the child, the symptoms accompanying the diarrhea and the probable etiology of the diarrhea. In discussing the general condition, the author points out that the age of the nursling is of great importance. Dyspepsias occurring during the first three months of life are always serious. With advancing age the conditions become more favorable and the treatment more simple. Moreover, it is not the same whether nutritional disturbances develop in a breast-fed infant or in a bottle-fed infant. Dyspepsias of breast-fed nurslings are generally much milder than those of bottle-fed nurslings, and the author emphasizes that dyspepsia in a breast-fed infant is never an indication for the termination of nursing at the breast. The seriousness of a dyspepsia also depends on the fact whether it develops in a well nourished child, in a dystrophic one, or in one with atrophy. Of the symptoms that accompany diarrhea, the author discusses loss of turgor, vomiting and signs of toxicosis. A knowledge of the etiology is likewise important in the proper management of dyspepsia. The author discusses alimentary dyspepsia, which may be caused by errors in care and feeding, and infectious dyspepsia of the parenteral type developing in the course of infections outside the intestinal tract, for instance of the respiratory tract or of the ear. It is evident that this type of dyspepsia requires a different treatment than does the alimentary type. The author designates as enteral the dyspepsia in which the infection is localized in the intestinal tract, and he points out that this form may be caused by many different pathogenic organisms. The treatment of all acute diarrheas of nurslings should be done in three stages: first a hunger period, during which weak tea and later thin gruels are given; then the period of curative diet, during which the nursling receives diluted milk with the addition of carbohydrates or of protein preparations, and finally the change to a normal diet. The author gives advice on the treatment of the various forms of dyspepsia.

Agranulocytosis Following Brain Trauma. — Bingel reports the history of a man, aged 59, in whom agranulocytosis became manifest following a traumatic hemorrhage of the brain, and who died a short time later. The anamnesis, which revealed a past history of articular disturbances and of excessive drinking, indicates that two years previous there had already been symptoms of agranulocytosis. The necropsy showed a beginning cirrhosis of the liver and, since there are indications for a connection between liver and bone marrow (liver therapy of anemia), it is likely that the cirrhosis of the liver played a part in the etiology of agranulocytosis. Moreover, it is known that an agranulocytic reaction frequently occurs in articular disturbances. However, the author is unable to say whether in this case there was a causal connection between the agranulocytosis and the articular disturbances, and he only wishes to call attention to such a possibility. He assumes that in the reported case the agranulocytosis was elicited by the brain trauma by way of the mobilization of a latent infection (attack of chills on the evening of the day of a fall on the head). The rapid succession of trauma and agranulocytosis indicates their causal connection, and death would thus be a result of the accident.

29: 1099-1130 (Aug. 11) 1933

Hoarseness and Its Treatment. A. Brüggemann.—p. 1099.
Experimental Studies on Tumors. M. Reiss.—p. 1100.
*Influence of Moor Baths on Absorption of Iodine Through Skin and Its Fate in Organism. H. Anthes and F. Salzmann.—p. 1103.
Malformation of Hypophysis in Fetus with Dropsy. E. J. Kraus.—p. 1104.
Paradoxical Water Intake (So-Called Negative Perspiratio Insensibilis). E. Urbach.—p. 1105.
*Treatment of Acute Articular Rheumatism and of Similar Infectious Diseases by Means of Painting with Tannin Spirits and by Injection of Turpentine Preparation. A. Streubel.—p. 1106.
*Simple Procedure for Determination of Blood Sedimentation. A. Steiger.—p. 1108.
Familial Disposition to Heart Block; Contribution to Pathogenic Connection Between Adams-Stokes and Cheyne-Stokes Syndrome. B. Dlugacz.—p. 1109.
Finger Sucking During Childhood. M. Schaechter.—p. 1111.
Thyrotropic Hormone of Anterior Lobe of Hypophysis and Tissue Metabolism. H. Druckrey.—p. 1112.
Psychologic Remarks to Goethe's Theory of Colors. M. Löwy.—p. 1113.
Treatment of Leukorrhea by Means of Aluminum Salts. H. Wolf.—p. 1116.

Moor Baths and Absorption of Iodine Through Skin. —The moor baths employed by Anthes and Salzmann were prepared by mixing 50 Kg. of bath moor with 50 liters of hot water, so that the bath had a temperature of 39 C. (102.2 F.), to which from 5 to 50 Gm. of potassium iodide was added. A bath lasted twenty minutes. Baths without the addition of moor or of iodine salts served as controls. The iodine content of the blood and of the urine was determined, and it was found that after a moor bath to which potassium iodide had been added the iodine content of the blood was increased. The maximum of the iodine content of the blood was reached in from one and a half to three hours. After four and a half hours the values were again normal. The concentration of the baths had no influence on the iodine content of the blood. The iodine was not eliminated in the urine, and it is probable that it was deposited in the tissues.

Treatment of Acute Articular Rheumatism.—Streubel maintains that acute articular rheumatism is the result of a streptococcic infection, the particular streptococcus being not yet identified. He shows that, in patients in whom articular rheumatism follows a tonsillitis, painting of the tonsils with alcohol or with spirit of tannin is effective. This procedure is used to prevent further dissemination of bacteria and of their toxins. The alcohol or the spirit of tannin is applied three times daily and counteracts the fever and the articular pains within a comparatively short time. However, the increase in the defensive power of the organism is also an important factor in the treatment of articular rheumatism. Since a specific serotherapy is not possible, the author recommends nonspecific irritation therapy and states that he has obtained good results with the intramuscular injection of a turpentine preparation. The injections are given every two or three days into the gluteal muscle. In adults 1 cc. is administered and in children 0.05 cc.

Simple Method for Determination of Blood Sedimentation.—Steiger employs a leukocyte pipet for his simplified sedimentation test. His method is as follows: Citrate solution is drawn up to mark 5 of the leukocyte pipet and is then blown out. Then the blood, which he advises taking from the finger rather than from the ear, is drawn up to mark 1 and is blown into the drop of citrate solution. This mixture is stirred and drawn up again to mark 1. Then the pipet is closed by means of paraffin and is put in the vertical position, and after one or two hours the result is read. The readings of course do not correspond to those of the standard method, for a pipet of 60 mm. cannot show a sedimentation of 50 mm. However, the author thinks that in the end it is the same, whether the sedimentation is given according to Westergren with 20 and 40 mm. or according to this "micromethod" with 15 and 28 mm. He stresses the following as the advantages of his micromethod: It is simple, dispenses with complicated apparatus and can be employed in small children. Moreover, since a small amount of blood is sufficient, puncture of a vein is unnecessary, which is important, because the sedimentation test, to be valuable, requires repetition.

Monatsschrift für Kinderheilkunde, Berlin

58: 329-408 (July 27) 1933

*Blood Picture in Icterus Neonatorum Familiaris Gravis and Its Diagnostic Significance. J. Altzitzoglou.—p. 329.
Gallstones During Early Childhood. F. Eckardt.—p. 352.
Remarks on Grosser's Paper on "Aseptic Meningitis" and "Meningeal Encephalitis." K. Hassmann.—p. 362.
*Significance of Constitutional Influences for Pathogenesis of Nutritional Disturbances in Nurslings. J. C. Schippers.—p. 364.
Insulin Ketonuria During Childhood. W. Sick and M. Weichsel.—p. 383.
Blanching Phenomenon in Scarlet Fever Produced by Placental Extract. O. Terner and Helene Goldhamer.—p. 388.
Permeability of Blood-Cerebrospinal Fluid Barrier and of Blood-Brain Barrier. Y. Yamacka.—p. 391.

Blood Picture in Icterus Neonatorum Familiaris Gravis.—Altzitzoglou points out that, among the various forms of icterus in the new-born, icterus gravis is of especial importance because of its serious consequences for the family. The statement that a similar case has already been observed in the family, particularly if in the same generation, is of greatest significance for the diagnosis. However, isolated cases are possible, and it is important that the first case occurring in a family be recognized, the more so since an early diagnosis will make possible therapeutic measures which are often helpful in a disturbance that frequently ends fatally. The author shows that erythroblastosis is a characteristic symptom of icterus neonatorum familiaris gravis. Since erythroblastosis is physiologically present in the new-born, it may be difficult to estimate this symptom unless it occurs in an extreme form. However, erythroblastosis has a pathologic significance if it increases during the first few days of life. In doubtful cases it is advisable to count the normoblasts in addition to taking into consideration the anamnesis and the clinical symptoms. The author cites normal values from the literature and from his own observations. He emphasizes that the early diagnosis of this form of icterus is important because an early diagnosis will make possible a blood transfusion, which may cure this frequently fatal disorder.

Constitutional Influences and Nutritional Disturbances. —Schippers' report is based on observations on 691 nurslings with severe nutritional disturbances. He points out that according to leading pediatricians the causes of nutritional disturbances are classified into three groups, alimentary, infectious and constitutional. He thinks that too many manifestations are ascribed to constitutional factors purely because of the want of an adequate explanation. He tries to determine the rôle of constitutional factors in the pathogenesis of serious nutritional disturbances, and he evaluates particularly the significance of so-called constitutional hydrolability. His definition of constitution coincides more or less with that of von Verschuer, according to which it includes all factors that determine the status of the nursling at birth. He designates these factors as endogenic and, in contradistinction to it, terms all others, that is, those that influence the nursling after birth, as exogenic. He finds that endogenic factors played a part in about 25 per cent of the nurslings with nutritional disturbances. He thinks that this figure may be too low, since the data regarding the nearly 200 cases with fatal outcome are insufficient. Nevertheless, constitutional factors play a part in

the smaller number of cases. He discusses constitutional hydrolability and concludes that it is the result and not the cause of the reduced resistance in nurslings and that the two have the same cause. Hydrolability exists because the child is ill and not vice versa. The author states his theory about hydrolability as follows: Hydrolability does occur occasionally as a diathesis, but as such it does not represent a deciding factor in the etiology of nutritional disturbances. He believes that as a symptom of nutritional disturbances hydrolability may be serious, and that it is a sign of grave changes.

Münchener medizinische Wochenschrift, Munich

80: 1201-1236 (Aug. 4) 1933

Heredity, Race Hygiene and Population Politics: Heredity and Constitution in Leukemia. P. Morawitz.—p. 1201.
Race Hygiene and Education. F. Siebert.—p. 1203.
Significance and Treatment of Retention of Urine. A. Krecke.—p. 1204.
Experiences in Comparison of Various Methods of Treatment of Postoperative Tetany. W. Rieder.—p. 1207.
Clinical Diagnosis of Infarct of Cardiac Muscle. H. Lotze.—p. 1211.
*Early Sign of Infection with Chickenpox. O. Lade.—p. 1215.
Epilepsy During Childhood. J. Zappert.—p. 1215.
Apple Treatment of Chronic Fermentative Dyspeptic Enteritis. P. Bogdanović.—p. 1217.
*Experiences with Raw Apple Diet in Intestinal Disorders. A. Hartwich.—p. 1217.
*Apple Diet in Young Nurslings and Small Children. Elisabeth Urbanitzky.—p. 1219.
Improved Apparatus and Indications for Bloodless and Bloody Cupping Methods. B. Aschner.—p. 1220.
Treatment of Bronchitis with Ether According to Bier: Modification According to Révész. H. Strehl.—p. 1222.
Inadvisability of Massage and Passive Movements in New Injuries of Bones and Joints. E. Enderlen.—p. 1223.

Early Sign of Chickenpox.—Lade has found that many children have a diarrheal or an extremely thin stool two weeks before the manifestation of the eruption of chickenpox and he thinks that this observation should be an inducement to isolate such a child. The diarrheal stool has also a certain significance for the still disputed question of the port of entry of the chickenpox virus. The author thinks that it indicates the intestinal route.

Raw Apple Diet in Intestinal Disorders.—Hartwich states that Heisler's report on the favorable effect of the raw apple diet on intestinal disorders was taken up almost exclusively by pediatricians, who corroborate its beneficial effect in intestinal disorders of children, while it found little application in the treatment of intestinal disturbances of adults. He therefore reports his observations with the apple diet on adults. He treated forty-six cases of gastrogenic diarrheas, acute enteritis and gastro-enteritis, dysentery and paratyphoid, and on the basis of his observations he recommends the raw apple diet for the treatment of such cases. He found that the diarrhea is promptly arrested and that the stools soon become negative in infectious intestinal disorders. He states that he employed the grated pulp of ripe, peeled, raw apples. The apple diet usually satisfied the hunger and thirst of the patients completely and it became necessary to give some tea during the night only in extremely dehydrated cases. The daily quantity of apples varied between 0.5 and 1.5 Kg. In most cases the apple diet was followed by a day of restricted diet and, after that, the patients were given the general hospital diet. The author discusses the various theories of the mode of action of the apple diet.

Apple Diet in Young Nurslings and Small Children.—Urbanitzky points out that the favorable experiences obtained with the Heisler-Moro apple diet in intestinal disturbances of children beyond the nursling age induced her to try the apple diet also in nurslings. But because apples that are suitable for the raw apple diet are not available the year round, she used a pure apple powder. She employed it in ten nurslings of less than 6 months, in twelve of less than a year and in twenty-five of less than 2 years. The disturbances were of various types and origins, being acute and subacute nutritional disturbances, infectious enteritides, nutritional disturbances of parenteral origin and manifestations of intoxication. Disorders of such diverse origin responded equally well. The youngest nurslings first received tea with a 4 per cent addition of the apple powder, and later their milk mixture with an addition of from 5 to 6 per cent of apple powder. With this treatment the stools usually became normal on the third or fourth day. The number of calories was reduced to about half during the treatment in the severest cases and to about two thirds in the less severe cases. In older nurslings and in small children, the apple powder had to be given only for two or three days, and sometimes only for one day. In cases of intoxication, protein milk was given in addition to the apple powder, beginning with the second or third day.

Wiener klinische Wochenschrift, Vienna

46: 993-1016 (Aug. 11) 1933

What is Accomplished by Roentgen Examination in the Diagnosis of Adhesive Pericarditis? E. Zdansky.—p. 993.
Distribution and Elimination of Thorium Following Injection of Thorium Dioxide Solution. T. Leipert.—p. 994.
Technic of Cistern Puncture. A. von Sarbó.—p. 996.
*Contralateral Adductor Reflex Produced by Percussion of Patellar Tendon in Absence of Patellar Tendon Reflex. H. Herschmann.—p. 997.
Demonstration of Tuberculous Ultravirus in Blood by Means of Löwenstein's Method. A. Urgoiti.—p. 998.
Prognosis in Suppurative Meningitis. E. A. Pribram.—p. 1001.
*New Therapeutic Principle in Exudative Disturbances. O. Ried.—p. 1001.
Radium Therapy. H. Fuhs.—p. 1003.
Dermatoses of Puberal Period and Their Treatment. R. O. Stein.—p. 1009.

Contralateral Adductor Reflex in Absence of Patellar Tendon Reflex.—Herschmann noted a peculiar reflex phenomenon in a man, aged 48, who was operated on because an atypical syringomyelia was assumed. The patient had a spastic paresis of the legs, which has been improved since the operation although there still exist, particularly in the region of the left lower extremity, considerable hypertonia, spontaneous movements and a spastic-paretic disturbance. The Babinski and the Oppenheim reflexes are positive on the left side and the achilles tendon reflexes are increased on both sides. The percussion of the achilles tendon elicits not only a plantar flexion of the foot but also a lively twitching of the adductor group of the same side. The patellar tendon reflex of the left side is greatly increased. Percussion of the region of the medial condyle elicits on the left side a lively adductor reflex which partly involves the adductor group of the right side. An attempt to produce the adductor reflex on the right side results in a slight twitching of the adductors of the left side, whereas the group on the right side responds hardly at all. This proves that the crossed adductor reflex predominates. However, the phenomenon to which the author desires to call attention is that the patellar tendon reflex of the right side is absent. Percussion of the patellar tendon of this side produces in the adductor group of the left thigh an extremely lively contraction. Thus, the phenomenon in question is a crossed adductor reflex, which is produced by the percussion of the patellar tendon of the side on which the patellar tendon reflex is absent. The author observed the same phenomenon also in another patient in whom neurologic examination revealed the abolishment of the patellar tendon reflex, of the adductor reflex and of the achilles tendon reflex on both sides. He discusses various theories of the pathogenesis of the crossed adductor reflex.

New Therapeutic Principle in Exudative Disturbances.—Ried calls attention to biologic actions shown by inorganic substances, particularly by certain salts, after they have been irradiated. The type of action is dependent on the quality and the quantity of the rays, on the aggregate state of the substance (solid, fluid, gaseous, crystalline or colloidal) during irradiation, and on the distance between the source of rays and the substance. Irradiation experiments were performed primarily on salts the chemical state of which was not changed by the irradiation. The author thinks that the new biologic action of irradiated salts is due to the energy emitted by the salts, which he assumes to be beta rays. The result of biologic experiments on animals induced him to attempt a therapeutic utilization of irradiated salts. He employed them in the form of baths. A concentrated solution of potassium salt was exposed for fifteen minutes to the light of a mercury vapor lamp, following a preliminary exposure to red rays. This irradiated solution was then used for baths that had a concentration of 0.05 per cent, a hydrogen ion concentration of 7.75 and a temperature of 28 R. (95 F.) and lasted from fifteen to twenty minutes. Occasionally partial or total packs were

employed instead of the baths, the concentrations of the packs varying in different cases. The author thinks that neither the temperature nor the concentration of the baths would be capable of producing the therapeutic effects that were obtained and that, as subsequent sweating was avoided in order not to eliminate again the traces of salt which had been adsorbed, sweating can also be excluded as a therapeutic factor. He concludes that the therapeutic action of the baths must be due to the ray action of the salt solution. He reports the histories of several patients in whom about twenty baths produced considerable improvement in conditions such as polyarthritis and spondylarthritis and in a case of exophthalmos following a septic disorder. He believes that the baths with the irradiated solution of potassium salt will not remain without effect in other exudative processes. At any rate, in articular processes of various origins that prove refractory to other treatments the baths with the irradiated salt solution usually give good results.

Zeitschrift für Tuberkulose, Leipzig

68: 1-144 (July) 1933

Measurement of Venous Pressure in Pulmonary Tuberculosis. E. Gabe.—p. 2.
"Pulmonary Tuberculosis and Circulation": Determination of Circulation Time. F. Warnecke.—p. 7.
*Early Tuberculous Infiltrate, Particularly Problem of Its Treatment. H. Alexander.—p. 12.
Transitory Character of Infiltrations. F. Hochstetter.—p. 17.
Pathologic Anatomy of Pulmonary Infiltration (Collateral Inflammation) in Tuberculosis of Children. J. Zeyland.—p. 23.
*Rôle of Phrenic Exeresis Within Scope of Surgical Methods of Treatment of Pulmonary Tuberculosis. T. Naegeli and H. Schulte-Tigges.—p. 29.
After-Treatment of Endopleural Division of Strands. Gert Zimmermann.—p. 33.
Sequelae After Unilateral, Particularly Left-Sided, Exclusion of Phrenic Nerve. A. Löwenstamm.—p. 36.
Cause of Pulmonary Respiration in Pneumothorax. A. Albert.—p. 39.
Cultural Demonstration of Tubercle Bacilli in Blood in Necropsy of Patient with Carcinoma. H. König.—p. 40.
Type Differentiation of Tubercle Bacilli on Culture Mediums. Ruth Pallaske-Eber.—p. 42.
Formation of Auto-Antibodies in Tuberculosis. Ö. Fischer.—p. 50.
Percutaneous Immunization Against Tuberculosis in Guinea-Pigs. J. Bürgers.—p. 56.
Tuberculin Reaction in Tuberculosis of the Aged. R. Mayer.—p. 60.
Influence of Heredity in Pathogenesis of Tuberculosis. K. Schuberth.—p. 62.
Systematic Development of Care for Tuberculous Patients. O. Glogauer.—p. 71.
Results of Roentgenologic Examinations of Youths and Students in Kiel in Course of Three Years. Büsing.—p. 78.

Early Tuberculous Infiltrate.—Observations from 1926 to 1931 convinced Alexander that patients with early tuberculous infiltrates should receive institutional treatment as early as possible. He found that, if all external irritation is kept away from them, spontaneous and permanent improvement may be expected in a large percentage of the patients. Beginning cavernization and even completely formed round caverns do not always necessitate collapse therapy immediately. Careful clinical observation, particularly examination of the sputum, will generally reveal, within the first or at the latest within the second month, whether an expectant attitude can be assumed or whether active therapy is advisable. If these principles are followed, the prognosis of the early infiltrate is favorable; that is, there are prospects of recovery in approximately 90 per cent of the cases.

Phrenic Exeresis.—Naegeli and Schulte-Tigges evaluate phrenic exeresis on the basis of their experiences in 314 cases. In discussing the technic of exeresis they point out that, in case of considerable adhesions, twisting of the nerve should not be done with too much force, as this may result in injuries, but resection should be resorted to and care should be taken that the branches of the nerve are also removed. The authors observed the complications of phrenic exeresis, against which some observers have warned, only in mild forms and generally only for a short time after the operation. The authors cannot corroborate the observation that phrenic exeresis is most effective in processes of the lower lobes but rather found that those in the median portion of the lung are influenced most favorably. They think that, if after two or three months the exeresis has not produced satisfactory results, other surgical methods should be resorted to. They advise more use of the temporary exclusion of the phrenic nerve, by means of crushing, freezing or alcohol injection. Crushing of the phrenic nerve is particularly helpful for temporary exclusion. It interrupts the nerve conduction for from four to six months, provided that eventually existing accessory phrenic nerves also are excluded.

Bibliotek for Læger, Copenhagen

125: 255-288 (July) 1933

*Continued Investigations on Circulatory Conditions in Varices and Their Connection with Ulcer and Eczema of Leg. H. Haxthausen.—p. 255.
*Investigations on Kidney Function in Patients with Heart Ailments. A. Brems and E. Nielsen.—p. 266.

Circulatory Condition in Varices.—Haxthausen states that the results of his later as well as his earlier investigations point to a close etiologic relation between filtration edemas and cutaneous complications in varices and that an explanation of the pathogenesis of these complications on this basis harmonizes with clinical experiences regarding their appearance.

Kidney Function in Heart Diseases.—Brems and Nielsen found that the results of creatinine and urea clearance determinations and of Strauss's concentration test agreed both in normal persons and in patients with renal or cardiac disorders. Most patients with marked heart insufficiency and a considerable number with symptoms of stasis without marked insufficiency gave creatinine and urea clearance values below the lowest normal limit. There was no constant agreement between the clinical judgment of the condition of the heart and the results of the kidney function tests. No certain difference was seen in the kidney function in cardiac patients with increased and with normal blood pressure.

Ugeskrift for Læger, Copenhagen

95: 833-854 (Aug. 3) 1933

*Clinical Significance of Diastasuria: IV. Differential Diagnosis in Different Forms of Jaundice on Basis of Diastase Elimination. J. Foged.—p. 833.
Cholelithiasis (Stone in Choledochus) with Accompanying Pancreatic Disturbance (Subchronic Pancreatitis or Pancreatic Stasis). K. Germer.—p. 838.
*Acute Febrile Syphilitic Meningitis. C. Clemmesen and G. E. Schrøder.—p. 841.
Dermography. A. Yde.—p. 842.
Exploration Ointment Dak. H. Wulff.—p. 845.
New Hemostatic. J. O. Jacobsen.—p. 845.
Gymnastic Therapy (German Points of View). A. Faber.—p. 846.

Clinical Significance of Diastasuria.—Foged made 1,247 analyses of the urinary diastase in 175 patients with different forms of jaundice. In patients with hepatitis and cancer of the pancreas the diastase concentration does not exceed the normal, but pathologically increased values are seen in more than half of the patients with stone in the choledochus. In cases of jaundice presenting diagnostic difficulties an increased urinary diastase is thus considered as a probable indication of stone in the common bile duct, although a normal urinary diastase does not testify against this condition.

Acute Febrile Syphilitic Meningitis.—Clemmesen and Schrøder's patient, aged 25, presumably infected with syphilis ten months earlier, gave the picture of acute meningitis with fever. Changes were found in the spinal fluid, and the Wassermann reaction was positive in both blood and spinal fluid. The symptoms disappeared on administration of antisyphilitic treatment. The authors state that acute syphilitic meningitis, while rare, occurs in children and adults, most often between the age of 20 and 30, generally appearing from two to twelve months after the infection, although a latent period of several years has been observed. With timely antisyphilitic therapy the prognosis is usually good. In cases of meningitis, syphilis should be borne in mind as the possible cause and the Wassermann test made on the spinal fluid.

95: 855-878 (Aug. 10) 1933

Results of Tonsillectomy. S. Heiberg.—p. 855.
Histamine Iontophoresis. H. Heidemann.—p. 863.
*How Early Can Pregnancy Be Diagnosed in Urine? H. Nielsen.—p. 864.

How Early Can Pregnancy Be Diagnosed?—Nielsen believes that with the Friedman-Schneider test it is possible to establish pregnancy before the first cessation of menstruation. Apparantly conception can occur directly after the end of menstruation and even during the menstrual period. Whether or not the gonadotrope hormone eliminated in the urine during pregnancy is always derived from the placenta cannot yet be determined.